ANNUAL REPORT

ON THE

Health of Blackpool

FOR 1893.

BY

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MEDICAL OFFICER OF HEALTH.

THE CORPORATION OF BLACKPOOL

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1894.

To the Urban Sanitary Authority of the Borough of Blackpool.

Mr. Mayor and Gentlemen,

I have the honour to present to you the Annual Report of the work of the Sanitary Department during the year 1893. It has been a period of great anxiety, and the arduous and continuous labours of your officers have been required to cope with the difficulties which have arisen. Notwithstanding the prevalence of infectious diseases and the deaths from summer diarrhœa during the exceptionally hot and dry summer, the death-rate from all causes of disease remains practically the same as last year. There have been several matters of serious importance to the reputation of the Borough which have had to be dealt with during the year, and which you will find mentioned in detail in the suitable place in the body of the Report. I have to thank the officials in my department for the zeal and willingness with which they have worked when any emergency has occurred and extra duty has been demanded from them. And, finally, I have to thank the Chairman and members of the Sanitary Committee for the aid and support which they have extended towards me during the past trying year of office.

I trust that you will read carefully the Report, and that as soon as practicable you will see your way to adopt whatever recommendations for the future may be contained therein.

I am, Gentlemen,

Yours faithfully,

A. JASPER ANDERSON,

Medical Officer of Health.

Public Health Office, Blackpool,
January 24th, 1894.

REPORT.

1.—VITAL STATISTICS.

A.—SUMMARY.

	1893.
Area of Borough	3,495 acres
Rateable Value (General District Rate)	£191,459 13s. 6d.
Do. (Borough Rate)	£200,216
No. of Dwelling-Houses on Rate Book	5,898
Do. do. empty	39
Persons per House as per Census	4·84
Population of Residents (estimated at middle of year, 1893)	
5,859 houses at 4·84...per house	28,389
Population (Census, April 6th, 1891)	23,846
Density of Population (persons per acre)	8·12
Birth-rate (per 1,000)	22·47
Death-rate (gross)	18·74
Infant Mortality (per 1,000 births)	210·3
Zymotic Rate (per 1,000 inhabitants)	2·64
Death-rate (corrected for Visitors)	14·86
Do. (corrected by factor 1·129)	16·77
Infant Mortality (corrected for Visitors)	192·8
Zymotic Rate do. do.	2·22

A.—POPULATION.

The principle upon which I estimate the population of residents is to find the number of houses inhabited from the rate book and to multiply this number by the average number of inhabitants to each house as found by the 1891 census. There were, in August 1893, 5,859 houses inhabited, and this multiplied by 4·84 ... gives a population of 28,389. It is upon this basis that all the birth and death-rates for 1892 are calculated unless otherwise mentioned. The rapid development of the town may be judged from the fact that there were 341 more inhabited houses than in 1892. According to the census enumeration, and on the assumption that the rate of increase of population is the same as it was between 1881 and 1891, the population would be 26,783. But the former method is more applicable to Blackpool, and hence the resulting population 28,389 must be nearer the true population.

The increase of population has been 1,649, made up of 206 (the *natural increase*, excess of births over deaths) and 1,443 the excess of immigrants into, over emigrants from, the Borough.

Since the previous Annual Report was published further details of the census enumeration have been printed, from which I cull the following table, which shews to some extent the house accommodation in Blackpool at the period when the census was taken. There were 4,949 tenements, of which 702 contained less than five rooms. The number of these tenements and their occupants are classified in Table I.

TABLE I.

Tenement.	No. of Tenements	Number of Occupants in each Tenement.											
		1	2	3	4	5	6	7	8	9	10	11	12 or more
One-roomed	2	...	...	1	1	...	...	...	...	...	...	...	...
Two-roomed	46	6	17	7	8	1	2	2	2	1	...	...	...
Three-roomed	64	3	17	8	9	9	8	7	2	...	1	...	..
Four-roomed	590	22	82	110	115	87	69	42	35	19	4	3	2
Totals...	702	31	116	126	133	97	79	51	39	20	5	3	2

B.—BIRTHS.

During the year 638 births (327 males and 311 females) occurred in the Borough. The birth-rate was 22·47 as compared with 24·01 last year. For England and Wales the rate during 1893 was 30·8, and for the 33 great towns was 31·9.

These births include 30 illegitimate children, viz., 10 boys and 20 girls. The percentage of illegitimate births of total births is 4·7, and per 1,000 inhabitants the rate of illegitimate births is 1·05. These rates are higher than those of 1892, but lower than those for 1891.

C.—Deaths.

The deaths registered during the year were 532, and of these 110 occurred amongst visitors, thus giving 422 deaths amongst residents. The births during the year were 638, or a natural increase of population of 206. The deaths were divided into 268 males and 264 females. The gross death-rate is 18·74, and the rate corrected by deducting the deaths of visitors staying temporarily in the town was 14·86. If this latter rate be multiplied by 1·129, the factor required because of the age-and-sex-distribution of the population in Blackpool to make its rates comparable with the Registrar General's corrected death-rates, we get a corrected death-rate of 16·77. The death-rate is slightly less than the previous year, and is lower than it has been since 1888.

The death rate for England and Wales during 1893 was 19·2; for the 33 great towns 21·6; for the town districts 20·2; and for the country districts of England and Wales 17·4.

The population and the rates of the various wards of the town are given in the following table, the population of each ward being calculated on the number of inhabited houses:—

TABLE II.

Ward.	Population.	Birth-rate.		Death-rate.		Zymotic-rate.	
		1892.	1893.	1892.	1893.	1892.	1893.
Claremont......	3484	25·1	24·69	15·05	13·49	0·88	3·44
Talbot	7583	28·27	26·11	15·33	17·53	0·70	2·91
Bank Hey......	2267	13·46	8·38	14·35	14·51	0·44	1·29
Brunswick......	5199	21·82	20·58	14·07	15·2	0·61	1·54
Foxhall.........	6469	24·17	25·19	13·68	13·28	1·01	2·32
Waterloo	3387	23·8	19·19	17·85	12·99	1·88	0·88

The average of birth-rates, death-rates, and zymotic-rates for the six wards during the three years 1891-1893 are:—

	Claremont.	Talbot.	Bank Hey.	Brunswick.	Foxhall.	W'loo.
Birth-rate	24·41	26·72	10·51	20·68	25·64	20·09
Death-rate......	16·21	17·40	14·4	15·08	15·16	16·38
Zymotic-rate...	2·34	1·97	1·04	1·11	1·84	1·58

In 1893, Talbot ward had the highest death-rate and Waterloo ward the lowest, whilst in 1892 Waterloo had the highest and Foxhall the lowest. The rates for one year are liable to vary capriciously, but the average for three years ought to give results of some value with regard to the comparative healthiness of the wards, although it must be remembered that the age-and-sex-distribution will have an influence on the rates, *e.g.*, the low birth-rate in Bank Hey ward due to the business character of this ward.

The order of birth-rates in the wards is Talbot, Foxhall, Claremont, Brunswick, Waterloo, Bank Hey.

The order of death-rates is Talbot, Waterloo, Claremont, Foxhall, Brunswick, Bank Hey.

The order of zymotic rates is Claremont, Talbot, Foxhall, Waterloo, Brunswick, Bank Hey.

Claremont and Talbot wards owe their pre-eminence in the zymotic rates to the prevalence of epidemics of measles and scarlet fever, and also for Talbot ward to summer diarrhœa.

DEATHS IN CERTAIN AGE-GROUPS.

The death-rates for each sex in the five age-groups, under 5 years, 5 years and under 25, 25 years and under 65, 65 years and under 75 years, 75 years and over, have been calculated, and are given in table C in the Appendix.

The rate under 5 years is higher by 1·7 for each sex than during the decade 1891-90, and for both sexes combined 9·3 higher than in 1892.

The death-rate between 5 and 25 years of age was 2·23 for males and 2·7 for females, as compared with 3·75 for males and 4·22 for females during the decade 1881-90. The death-rate for the two sexes was 2·49 as compared with 3·2 in 1892.

At ages of 25 years and under 65 years males died at the rate of 14·39 as compared with 13·54 in 1881-90, and females at the rate of 10·37 as compared with 10·71 in 1881-90. The rate for the two sexes was 12·01 as compared with 13·4 for 1892.

For males the rate between 65 and 75 years was 65·57 as compared with 64·87 in the decade 1881-90; and for females 50·84 in comparison with 59·07 in 1881-90. For the two sexes the rate was 56·85 as compared with 65·1 in 1892.

At ages of 75 years and over males died at the rate of 117·02, females at 105·26, as compared with 187·14 and 138·78 for the decade 1881-90. The death-rate for the two sexes was 110·13 as compared with 140·1 in 1892.

The death-rates during all the age-groups in the year 1893 have been less than in 1892, with the exception of that of children under 5 years, which is in considerable excess.

LENGTH OF RESIDENCE OF PERSONS WHO DIED DURING THE YEAR 1893.

An attempt has been made this year to gauge as far as possible the extent to which the death-rate has been raised by the influx of persons into the Borough, who were already afflicted with some serious disease, or in an enfeebled state of health. For that purpose the length of time that each person who died had lived in the Borough was found out, and from this information Table III. has been constructed, which shews the number of persons in each specified age-group who have lived in the Borough for the period specified at the top of the column.

TABLE III.

Length of Residence of persons who died during the year 1893.

Age Group.	Deaths.	LENGTH OF RESIDENCE IN BLACKPOOL.																	Born in Blackpool.
		7 days and under.	14 to 7 days	1 month to 14 days.	3 months to 1 month.	6 months to 3 months.	9 months to 6 months.	12 months to 9 months.	2 to 1 year.	3 to 2 years.	4 to 3 years.	5 to 4 years.	10 to 5 years.	15 to 10 years.	20 to 15 years.	25 to 20 years.	30 to 25 years.	Over 30 years.	
Under twelve months	134	4	1	1	4	1	...	...	...	...	...	...	...	...	...	...	...	...	123
One year and under 5..	43	3	...	2	1	3	1	2	2	...	...	...	...	...	...	...	...	...	29
5 and under 15.........	27	4	3	...	...	2	1	...	3	3	...	1	1	...	...	...	...	...	9
15 and under 25.........	11	1	...	...	1	...	1	...	...	1	...	...	2	...	1	...	...	...	4
25 and under 65.........	220	15	13	11	15	7	3	3	13	9	6	10	28	16	11	14	11	7	22
65 and over..............	97	9	4	3	1	3	1	5	4	3	5	...	14	4	8	6	2	13	9
Totals..............	532	36	21	17	22	16	7	10	22	16	11	11	45	20	20	20	13	20	196

Particulars have been obtained with regard to 523 out of the 532 persons who died. Of those about whom no definite information could be gleaned, 6 were from 25 years to 65 years, and 3 were 65 years or over. Deducting the deaths of children under twelve months of age, it will be noticed that of the 389 deaths inquired into 32 had only been in the Borough 7 days or under, 52 in the Borough 14 days or under, 68 in the Borough 1 month or under, 86 in the Borough 3 months or under, 101 in the Borough 6 months or under, and 118 had lived here 1 year or less. The number who had resided here five vears or less was 178, *i.e.*, nearly half the persons dying here over twelve months of age had resided here for the short time of five years. We obtained information in many cases that the persons came to reside here whilst already suffering from disease.

INFANT MORTALITY.

The improvement which I noticed last year in the deaths of young children has not continued. The dry hot summer has brought about a number of deaths from diarrhœa—the connection between these two being always well-marked in Blackpool.

The number of children under 1 year of age who died during 1893 was 134, including 11 visitors. For every 1,000 births in the town during 1893, 192·8 children under twelve months of age died, or approximately one out of every five children born dies before it attains one year of age. The average of the rates for the 10 years 1883-92 is 153·4. The rate for 1893 is the highest rate since 1882.

In table F (in the Appendix) the quarterly rates are given, and from that table it will be seen that in the third quarter the rate reached the unprecedentedly large number of 325, in the first 183, in the fourth 132, and in the second 111. In past years the third and first quarters have usually been found the worst, and the second quarter the best with regard to infant mortality. The rate of infant mortality for England and Wales was 159 in 1893, and the average for 1881-90 141·6. For the 33 great towns it was

181, varying from 141 at Bristol and Huddersfield to 269 at Preston. The excessive mortality in the third quarter was due to diarrhœa, 33 deaths out of 66 being ascribed to that cause alone. In the first quarter the chief causes of death were bronchitis and pneumonia, and premature birth.

The causes of death were certified as follows:—

	1892.	1893.
Premature Birth, Atrophy, and Debility	20	23
Convulsions	9	8
Diarrhœa	6	35
Bronchitis and Pneumonia	19	16
Tubercular Disease	4	5
Whooping Cough	3	7
Measles	0	3
Croup	0	1
Marasmus	13	8
Other Causes	28	28
	102	134

Four of these cases were uncertified, the causes of death being stated to be respectively "convulsion fit," "convulsions," "diarrhœa," and "premature birth." On three other cases inquests were held. The verdicts were respectively death from "natural causes, to wit a convulsive fit," death from catarrhal pneumonia, and death from asphyxia, having been accidentally overlain in bed. It is significant that this occurred on a Saturday night. During the year 638 children were born, of whom 30 were illegitimate.

Of the 134 children under 12 months old who died in Blackpool, eleven had not been born here. These 123 children are divided into 113 legitimate and 10 illegitimate children. Hence out of every 1,000 legitimate children born 185·8 would have died during the first year, and 333·3 out of 1,000 illegitimate births. For the three years 1891-93 the legitimate births are

1,757, and the illegitimate ones 89. The deaths under 12 months of legitimate children were 289, and of illegitimate 28. The death-rate for legitimate children during these years was 164·4, and for illegitimate 314·6 per 1,000 births respectively. In other words, an illegitimate child has had half the chance of living to 12 months old that a child born in wedlock had.

In Table IV., the deaths distributed into wards are given, and in Table V. the infant mortality for each ward has been calculated, and further to avoid the errors of dealing with small numbers the mortality from the combined deaths and births during the four years has been calculated for each ward.

TABLE IV.

Number of Children under 1 year old, who died in the respective Wards.

Ward.	1890.	1891.	1892.	1893.	1890-93.
Claremont.........	16	23	11	18	68
Talbot	29	24	24	42	119
Bank Hey.........	4	2	3	5	14
Brunswick.........	18	14	17	19	68
Foxhall............	24	33	16	29	102
Waterloo	9	7	20	10	46
Total.	100	103	91	123	417

TABLE V.

INFANT MORTALITY.—Deaths of Children under 1 year old, per 1,000 Births.

Ward.	1891.	1892.	1893.	1890-93.
Claremont.........	298·7	129·4	209·3	208·5
Talbot	136·3	119·4	212·1	156·3
Bank Hey.........	95·2	100·6	263·1	141·4
Brunswick.........	153·8	158·8	177·5	170·0
Foxhall	221·4	111·9	177·9	177·7
Waterloo	134·6	263·1	153·8	174·9
Total.........	181·9	141·9	192·8	172·1

From this table it will be seen that Claremont Ward occupies the worst position and Bank Hey the best.

The deaths were distributed in the following age periods. The number in each column being the deaths at ages below that stated at the head of the column and over the age mentioned in the preceding column.

YEAR.	Under 1 month	Under 2 months	Under 3 months	Under 4 months	Under 5 months	Under 6 months	Under 7 months	Under 8 months	Under 9 months	Under 10 months	Under 11 months	Under 12 months
1892 (Resident)......	28	8	7	7	9	7	4	3	4	4	4	6
1892 (Visitors)	...	2	...	1	1	3	1	...	1	1	1	1
1893 (Resident)......	29	8	17	16	7	12	9	4	6	7	6	3
1893 (Visitors)	...	...	1	2	1	1	2	1	...	1	1	...

Three of the deaths amongst visitors were illegitimate children.

The large infantile mortality in Blackpool in the third quarter of the year is related to the over-crowding which must inevitably exist during that period, as well as to the neglect to which infants must be subjected by their mothers having to attend to the wants of visitors.

MORTALITY FROM ZYMOTIC DISEASES.

The seven principal zymotic diseases, viz.:—Smallpox, scarlet fever, diphtheria, 'fever,' measles, whooping cough, and diarrhœa caused 75 deaths, as compared with 24 in 1892, and 52 in 1891. Twelve of these were visitors. This gives a zymotic rate of 2·64 per 1,000 inhabitants, and deducting the twelve visitors 2·22. In the 33 English towns the rate for 1893 was 3·2, and 2·47 for England and Wales. There was 1 death from smallpox, 4 from measles, 11 from scarlet fever, 4 from diphtheria, 9 from whooping cough, 5 from enteric fever, and 41 from diarrhœa.

The zymotic rate from the five chief zymotics, deducting those from diarrhœa and whooping cough, was 0·88 as compared with 0·33 for 1892, and 1·47 for the 33 English towns. The corresponding rate for England and Wales was 1·17.

The diarrhœal rate was 1·44, and for England and Wales it was 0·97, and 1·22 for 33 Great Towns. Of the 41 deaths ascribed to diarrhœa 39 were clearly cases of summer diarrhœa, taking place from May to November. Thirty-four cases, 21 female and 13 male, were below twelve months old, 1 female was aged twelve months, a male 16 months, a female 19 years, and two males 46 and 57 years respectively.

Five deaths occurred in Claremont, 17 in Talbot, 2 in Bank Hey, 5 in Brunswick, 10 in Foxhall, and none in Waterloo Ward. Eight of the deaths in Foxhall Ward occurred in Revoe, and here two occurred in one house. Three deaths occurred in houses near to one another in Caroline Street; whilst in Wildman Street there was a death in each of three adjoining houses.

In Talbot Ward eleven of the deaths were in the district bounded by New Road, Cookson Street, Milbourne Street, and Elizabeth Street. The houses are nearly all 4-roomed tenements, and the parents of the children were universally of the working class. The causation of this epidemic I should trace to a high ground temperature acting on a soil which around some of the houses must have been polluted for years, and that the infection from this, specially acted upon children weakened by vitiated air from overcrowding and by neglect. There is some evidence, I think, in the foregoing facts that infection can be carried from child to child.

MORTALITY FROM OTHER DISEASES.

Phthisis caused 28 deaths including 7 visitors, *i.e.* 21 deaths amongst residents. The death-rate from phthisis is 0·73 as compared with 1·15 from 1892 and 0·98 for 1891. Diseases of the respiratory organs caused 118 deaths, including 15 visitors The previous year there were 102 deaths. The deaths from respiratory diseases other than phthisis constituted 22·1 per cent. of the total mortality as compared with 20·9 per cent. last year. The death-rate per 1,000 residents from respiratory diseases was 3·63. This, although a low proportion, is slightly higher than the previous year owing to the greater prevalence of influenza.

Influenza.—This disease prevailed during the latter end of the first and the beginning of the second quarter and also during the fourth quarter. During the year 16 deaths were certified as due primarily to influenza, and 6 others had influenza mentioned as a secondary cause.

Alcohol is responsible for more deaths in Blackpool than appear in the returns. However, five were certified to be due to alcoholism, whilst 13 others died from disease of the liver and from the attendant circumstances I judge that the primary cause of death was alcohol.

In Blackpool 0·176 per 1,000 persons are certified as dying from alcohol, and 0·634 at least must have their deaths caused by excessive drinking. In England and Wales for 1886-90 the deaths due to intemperance were 0·055 per 1,000. Hence in Blackpool the rate is three times as much as in the country at large. I have not taken into consideration some of the deaths from nervous diseases which most probably will have been caused by alcohol.

Cancer was the cause of 17 deaths as against 19 in 1892, 16 in 1891, and 18 in 1890. These 17 deaths include 4 from disease of the female genital tract, 3 each from the liver and intestinal tracts, 2 each from the stomach and rectum, and 1 from the breast. The cancer death-rate was 0·59 per 1,000 inhabitants. For England and Wales for the years 1886-90 the rate was 0·631, increasing from 0·547 in 1881-85. There is no evidence of any alteration in Blackpool of the prevalence of this disease.

The deaths from *injuries* were 7, as compared with 8 for 1892, 15 for 1891, and 8 for 1890.

It is satisfactory to note that the deaths after confinement were only five as compared with eleven last year.

The causes of these were stated to be:—(1) Labour, 11 days, acute bronchitis and pneumonia; (2) parturition, 15 days, *septicæmia*; (3) confinement, puerperal peritonitis, 11 days, exhaustion; (4) *Septicæmia*, following childbirth, 14 days, pneumonia, 6 days; (5) Parturition, puerperal peritonitis, 9 days. The rate of deaths after confinement per 1,000 births is 7·8 as compared with 15·6 last year, and 4·89 for England and Wales during 1890. There is still room for improvement in this cause of mortality.

The *Inquests* held during the year were 15, with the following verdicts:—

Natural Causes	2
Found Drowned	4
Injuries	6
Suicide by Potassium Cyanide	1
Catarrhal Pneumonia	1
Overlain in Bed	1
	15

There were 19 deaths, the causes of which were uncertified either by medical men or the coroner. Therefore 3·5 per cent. of the total deaths were uncertified.

Chart I. gives graphically the monthly death-rates, the black line giving the gross death-rates, the lower red line the corrected death-rates, the upper red line the mean weekly temperature. The upper shaded spaces denote the weekly deaths from diarrhœa, and the lower spaces shaded red the cases of enteric fever notified each week. It is noteworthy how the greatest number of deaths from diarrhœa occur four weeks after the two highest weekly temperatures. The largest number of cases of enteric fever notified in one week occurred during the thirty-ninth week of the year.

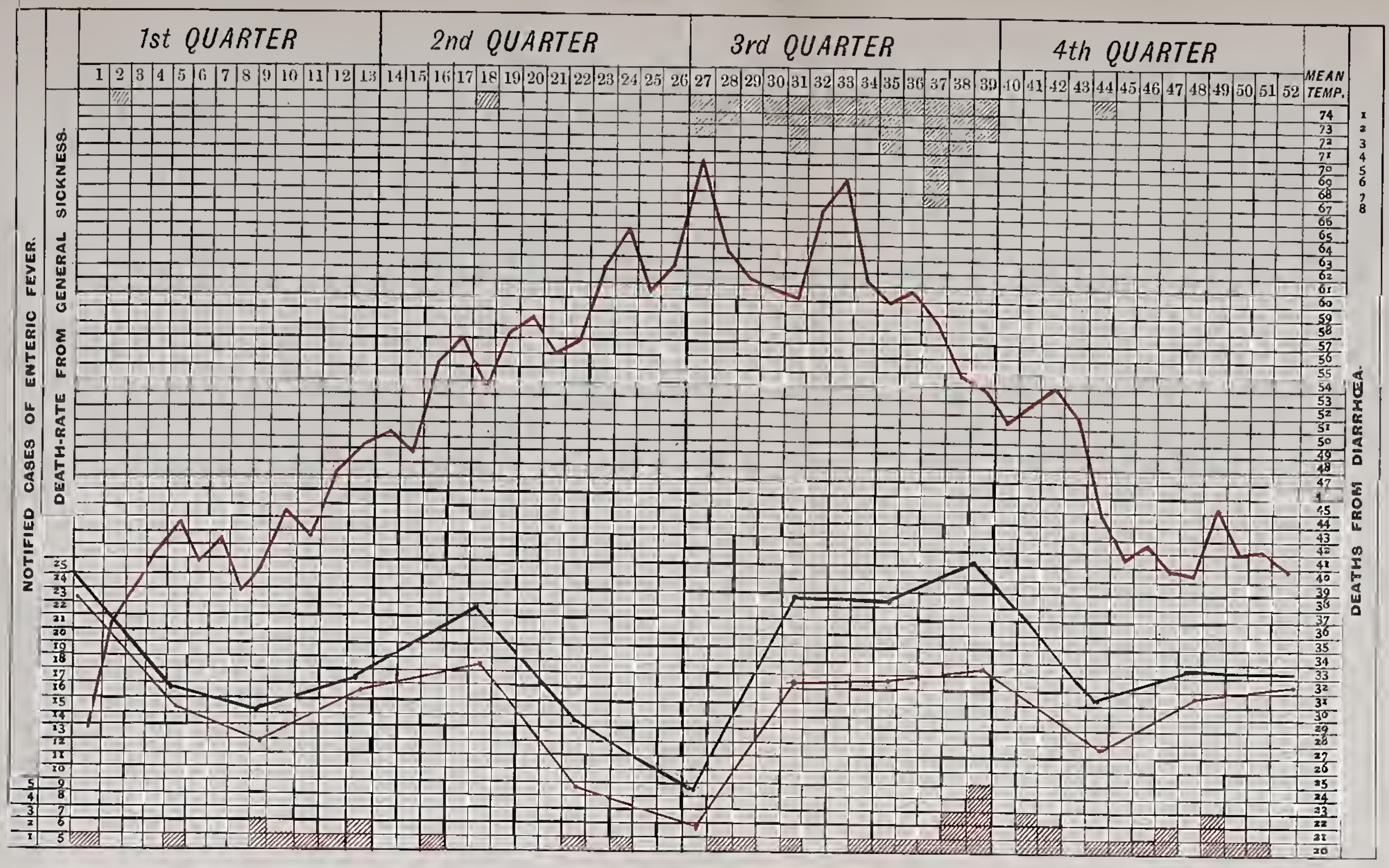
Chart II. gives the rainfall for each week of the year.

Chart III. gives the several death-rates for the last sixteen years.

Tables A, B, C, D, E, F, G, K, and L, in the Appendix, give further details of the vital and mortal statistics as compared with previous years.

The accompanying table gives a revision of the deaths from 15 causes during the last twelve years.

CHART I.



DEATH-RATE (Monthly) FROM GENERAL SICKNESS —
DEATHS OF RESIDENTS ONLY „ „ —
TOTAL DEATHS (Weekly) FROM DIARRHŒA ▨
MEAN TEMPERATURE (Weekly) —
NOTIFIED CASES OF ENTERIC FEVER ▨

CHART II.

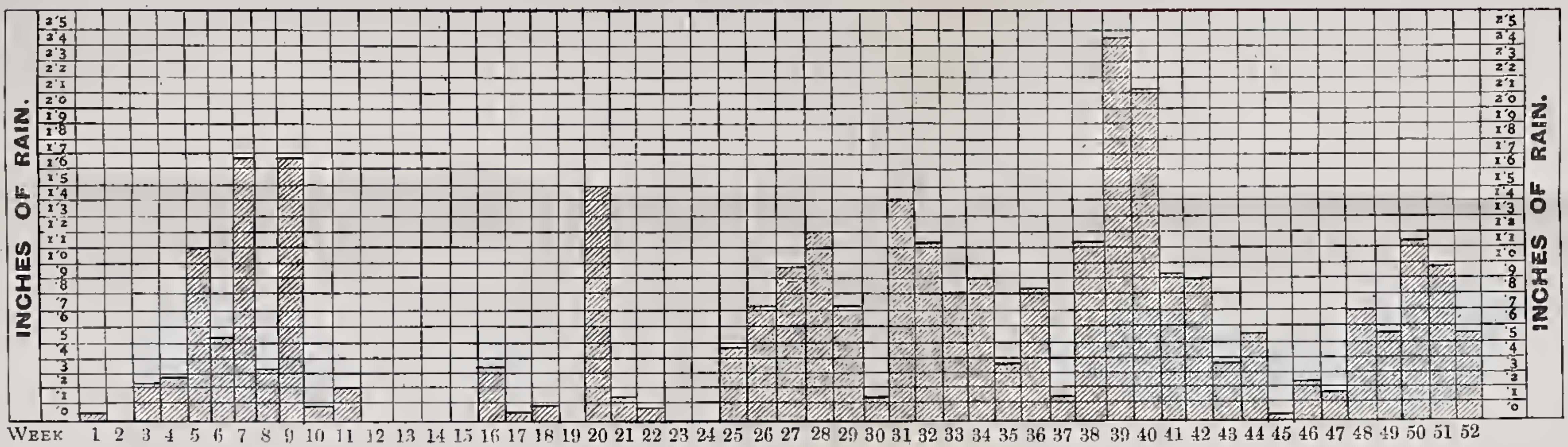


CHART III.

DEATH RATES.

From (1) GENERAL DISEASES - - - - - - -
„ (2) „ „ ———
Deaths of Visitors Deducted.
„ (3) SEVEN ZYMOTIC DISEASES ———

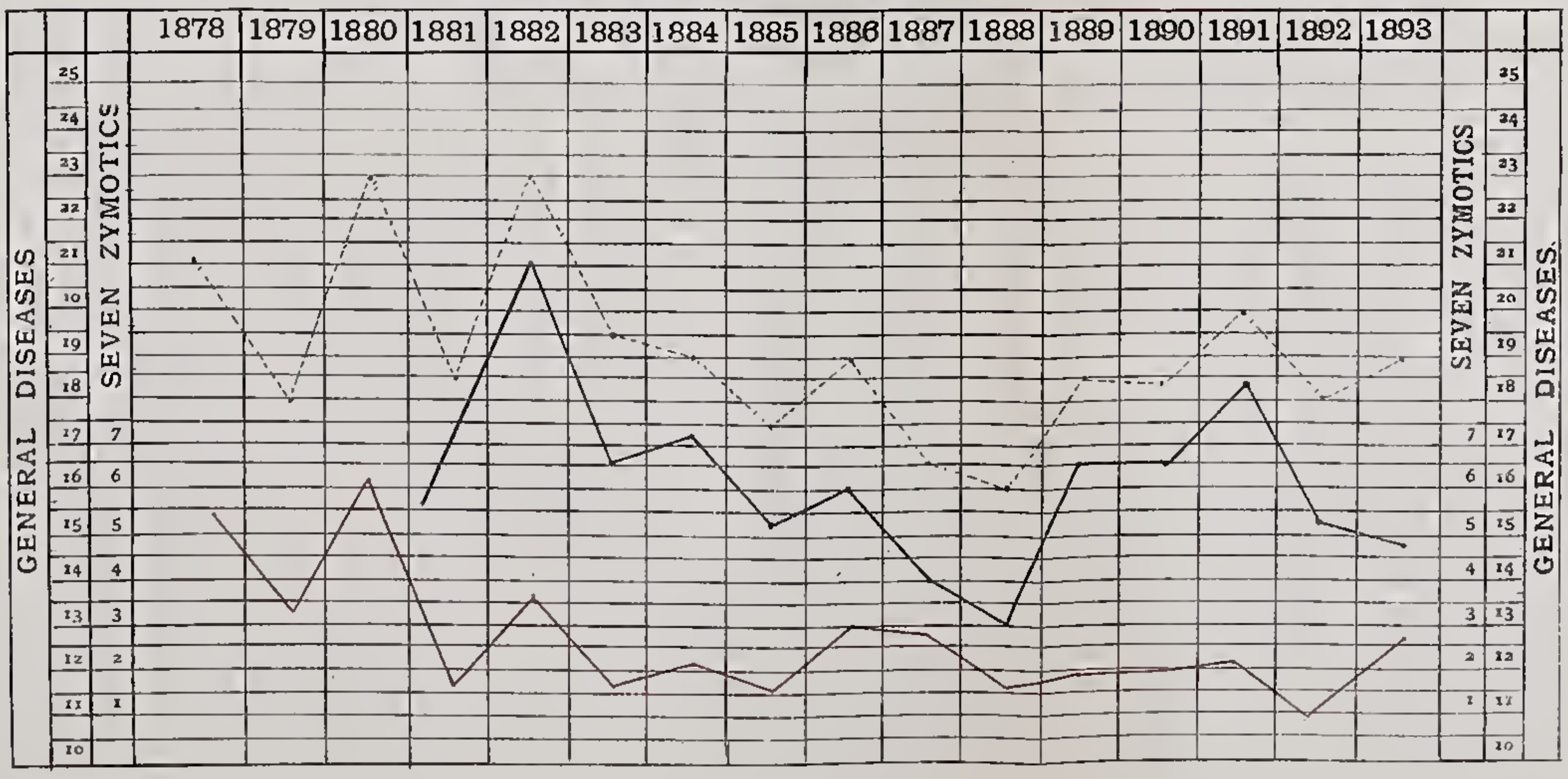


TABLE VI.

	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893
	16,000	16,000	17,212	18,031	19,550	20,380	20,540	21,661	24,312	23,846 Census.	26,740	28,389
Smallpox	...	1	...	...	...	...	...	...	...	...	...	1
Measles	17	1	2	2	10	...	5	2	8	10	...	4
Scarlet Fever	6	6	4	2	5	12	4	1	5	4	4	11
Diphtheria	2	3	2	2	5	5	13	12	6	1	1	4
Whooping Cough	3	2	1	11	3	14	...	8	2	7	5	9
Croup (not spasmodic	10	6	4	2	8	4	4	6	8	4	1	4
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	7	5	5	3	6	4	7	8	3	4	4	5
Diarrhœa	17	9	22	11	25	18	5	11	23	24	10	41
Rheumatic Fever	...	1	3	5	5	2	1	...	2	4	1	2
Erysipelas	2	2	1	..	2	1	2	2	...	1	...	4
Phthisis	27	26	26	17	27	25	23	30	27	32	33	28
Bronchitis Pneumonia and Pleurisy	62	52	41	55	65	61	62	64	95	137	102	118
Heart Disease	27	25	26	20	23	23	30	39	37	41	40	43
Injuries	7	6	12	5	11	6	7	15	8	15	8	7
Other Diseases	190	173	184	172	175	151	159	204	227	217	279	251

II.—ACTION TAKEN TO PREVENT THE SPREAD OF DISEASE.

A.—Notification of Infectious Disease.

As in the past very beneficial results have occurred through the prompt notification of cases of infectious disease. The year can be characterised as an "epidemic" year, and great zeal and promptitude were required to be displayed by the sanitary officials to prevent several diseases becoming very widespread and of serious import to the prosperity of the town.

An important further provision in dealing with infectious disease was obtained by Section 87 of the Blackpool Improvement Act, 1893, by means of which thorough isolation of any person suffering from a dangerous infectious disorder is ensured. This section extends the meaning of the phrase "without proper lodging or accommodation" in Section 124 of the Public Health Act, 1875, to include any person without proper lodging or accommodation having regard to the danger of infection to other persons in the same house. The notification of "puerperal fever" still remains to a great extent a dead-letter. There are special difficulties to deal with in this disease; but, I believe, it is important that the causation of these sad cases should be inquired into, and if possible ascertained cases removed, without having to wait for fatal cases as at present. This district suffers largely from the Notification of Infectious Diseases Act not being compulsory throughout the country. Visitors arrive in the Borough from such districts whilst still in an infectious condition and spread the disease amongst us.

The following cases of infectious disease were notified during the year, and are arranged in a tabular form to show the number of cases each month.

TABLE VII.

DISEASE.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Smallpox	...	...	...	...	3	1	...	...	...	1	1	...	6
Measles	3	...	1	8	6	11	51	25	12	...	4	1	122
Scarlet Fever...	4	4	4	7	5	8	7	23	23	27	9	9	130
Diphtheria ...	...	2	...	...	1	...	5	1	...	3	...	...	12
Enteric Fever	1	2	4	3	...	2	2	3	10	6	4	5	42
Puerperal Fever	...	1	1	...	1	...	...	...	...	1	...	...	4
German Measles	...	...	...	...	...	...	...	3	...	...	..	...	3
TOTALS	8	9	10	18	16	22	65	55	45	38	18	15	319

The number of imported cases, i.e., cases in which the infection occurred outside the Borough, or in which the patient was ill on arrival, and cases directly traced to such are given in the subjoined table :—

TABLE VIII.

DISEASE.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Smallpox	...	...	...	...	3	1	...	...	...	1	1	...	6
Measles	...	...	..	7	5	4	7	3	...	...	3	1	30
Scarlet Fever...	...	1	...	2	1	2	3	6	2	...	...	...	17
Enteric Fever	...	...	...	...	...	...	1	2	...	3	...	2	8
Diphtheria......	...	...	...	...	...	...	1	...	...	...	...	...	1
TOTALS	...	1	...	9	9	7	12	11	2	4	4	3	62

The number of houses infected with the different diseases is given in the following tabular statement:—

TABLE IX.—Number of Houses Infected.

DISEASE.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Smallpox	...	...	...	...	1	1	...	...	...	1	1	...	4
Measles	3	...	1	6	5	10	36	22	9	...	2	1	95
Scarlet Fever ...	4	4	3	7	5	7	7	14	14	13	7	5	90
Diphtheria	...	2	...	...	1	...	5	1	...	3	..	...	12
Enteric Fever ...	1	2	4	3	...	2	2	3	9	4	4	4	38
Puerperal Fever	...	1	1	...	1	..	...	...	...	1	...	...	4
German Measles	...	...	...	...	...	...	...	1	...	...	...	...	1
TOTALS......	8	9	9	16	13	20	50	41	32	22	14	10	244

The accompanying table gives the number of infectious cases notified, the deaths from these diseases, the percentage case mortality, and the death-rate from each disease per 1,000 inhabitants, as compared with the similar number for the 33 great towns.

TABLE X.

DISEASE.	Cases Notified.		Cases notified per 1000 inhabitants.	Deaths in 1893.	D.R. per 100 cases.	D.R. per 1,000 inhabitants.	D.R. per 1,000 inhab. for 33 great towns.
	1892	1893					
Smallpox..........	nil.	6	0·211	1	16·6	0·035	0·071
Measles	48	122	4·297	4	3·28	0·140	0·441
Scarlet Fever ...	70	130	4·579	11	8·46	0·388	0·291
Diphtheria	11	12	0·422	4	33·3	0·140	0·428
Enteric Fever ...	36	42	1·479	5	11·9	0·176	0·241
Puerperal Fever	1	4	0 140	4	100·0	0·140	...
Whooping Cough	...	...	...	9	...	0·317	0·481
Diarrhœa	...	...	...	41	...	1·445	1·22

The cost of notification in fees to medical men has been as follows :—

	£	s.	d.
Measles	11	7	6
Scarlet Fever	11	0	0
Diphtheria	1	5	0
Enteric Fever	4	12	6
Variola	0	10	0
Puerperal Fever	0	5	0
	£29	0	0

SMALLPOX.

There were four outbreaks of this disease in the Borough, each of which conveyed its own lesson.

(i) On May 2nd a case of smallpox was notified. It was then found that a family arrived from Nelson on April 6th, consisting of Mr. and Mrs. A, B (18 years) and C (17 years), daughters of Mrs. A, D (22 years) and E (13 years) nephew and niece, F (2½ years) a daughter, and G (15 months) a son of Mr. and Mrs. A.

One member of the family, B, a pupil teacher, had not been well for six days before leaving home, having an eruption on the cheeks, forehead, chest and arms, and after consulting a medical man on April 5th was permitted to visit Blackpool in search of health. At the period of my visit there was undoubted evidence that she was suffering from smallpox which had, until then, been overlooked. The daughter of the lodging-house keeper complained of not being well on April 27th, and at the period of my visit had three small pocks on one arm. The child G, 15 months old, who had not been vaccinated, commenced to be ill on April 28th, and on May 2nd the diagnosis of smallpox was arrived at. He died on May 3rd; the other two recovered. By isolation of the sick from the well, separation of the latter from the public, re-vaccination, daily medical inspection, and thorough disinfection, no further development occurred. It is noteworthy that although the pupil teacher had been mixing freely with the public in Blackpool for 26 days she infected no one except the unvaccinated child with whom she had been in close contact, and the landlady's daughter. This, I think, shows that sea-air has properties inimical to the smallpox infection. Further, there is little doubt that the first case contracted the disease at school from children attending from a house in Nelson where a young man was ill with smallpox which had been regarded as chickenpox.

The vaccination history of the inmates of the house was:—Mr. A, vaccinated in childhood, well-marked scars; Mrs. A, vaccinated, and re-vaccinated 20 years ago; B, two well-marked circular foveated scars about ¾″ diameter; C, D, and F had been vaccinated in childhood; the landlady's daughter had two well-marked foveated scars. The other inmates of the house consisted of the landlady and two domestic servants. All were re-vaccinated except the landlady. The landlady's daughter was vaccinated, but it did not take.

(ii) The second outbreak occurred in June. A family left Oldham on June 3rd, and, on the journey, the servant was taken ill with severe vomiting. On the Tuesday following, after the rash appeared, she went to a chemist, who prescribed for her, and it was not until the Friday that a medical man was called in, who at once recognised the nature of the disease. This is illustrative of one of the dangers of prescribing chemists. The household consisted, besides the servant, of Mr. X, Mrs. X, two male children (2½ years and 7 months respectively), and Mr. X's mother. All these had been vaccinated. The patient had four foveated scars of half inch diameter. This was a discrete case. They were all re-vaccinated, the patient isolated, the house disinfected, and the family kept under close surveillance for 16 days. No further development was observed.

(iii) The third outbreak was a case in a young man 27 years, on October 14th. He had visited Bradford on September 28th and 29th, when the disease was epidemic in that town.

The illness commenced on October 9th, and rash appeared on October 13th. He presented two small vaccination cicatrices about the size of a threepenny piece, non-foveated. It was a semi-confluent case. The other members of the family and their vaccination history was as follows :—Father, one foveated cicatrix, size of a threepenny piece; mother, three non-foveated scars, size of sixpenny piece; sister, two large scars through ulceration non-foveated; brother-in-law, three good foveated scars, size of sixpenny piece; second sister, three faint scars, non-foveated size of threepenny piece. All re-vaccinated, but only in the two last cases was it successful. The same measures, as in outbreak No. 2, proved effective.

(iv.) On November 10th I was informed of illness in the case of a young woman aged 21 years, who had been in London on October 24th and 25th. She started to be ill on November 4th with what proved to be smallpox, the rash appearing on November 9th. She presented two ill-defined scars. The other members of the household were three females. They were all re-vaccinated, and the precautions above mentioned taken. No further case was reported.

This experience shows the wisdom of keeping the Old Sanatorium always in a state of readiness for cases of smallpox, where patients can be isolated on a site removed from the cases of other infectious disease, and from surrounding dwellings.

MEASLES.

There was a slight epidemic of the disease during July and August. There were 122 cases during the year with four deaths.

In Blackpool there is a special liability to the importation of this disease. Thus in April there were seven imported cases, with the result that houses in the neighbourhood became infected, and from these the disease was carried by infected children to the infants' department of one school which became infected in June. However, the disease was kept in due bounds, and disappeared by the end of September.

Experience was gained as to the incubative period of the disease during the year. (i) A female child, aged 2 years, drove on April 19th along with a child who sickened on April 18th, with what proved to be measles; there was no other communication between the two. The second child became ill on April 29th and developed the rash on May 3rd. (ii) A child, 10 months old, was taken on June 13th for the day to its grandmother's out of the Borough, where measles was. The rash appeared on June 26th. (iii) Patient, 1 year 8 months, visited for the day on November 16th a house out of the Borough where measles existed. The rash appeared on November 28th.

One of the difficulties of measles notification was shown in a house where the elder child had measles, which was not notified, and no precautions taken until a younger child was taken ill, and the parents becoming alarmed sent for a medical practioner.

These difficulties do not discourage me in my estimation of the value of notification in this disease, but on the converse to make renewed efforts to convince the public of taking precautions in such cases.

Scarlet Fever.

This disease was with us as heretofore throughout the year, but became specially prevalent throughout August, September, and October. This indeed is not to be wondered at considering the want of care exercised by many visitors to the town, and also the want of proper administration with regard to such cases on the part of some sanitary authorities, from whose districts our patrons are drawn.

Some valuable experience was gained during the year, which I have tried to summarise in the following notes. In one case several members of the household had previously suffered from sore throat and "mumps," without any rash or desquamation. The drains of this house were in a very defective condition, and during the year two of the occupiers died from other diseases. In another case a boy in the house had had a sore throat a fortnight ago, and his mother an ulcerated sore throat the week previously. The subsequent examination of the drains by the smoke test in all infected houses revealed some startling conditions. Thus a new house which had only been occupied a few months by its owner had a leaky surface water-drain, a soil-pipe leaky at foot and joints, and a leaky yard drain which allowed smoke to penetrate into kitchen and bathroom and from the cavity-walls into every part of the house. Fortunately there was an intercepting trap, or the result might have been more serious.

In three houses the infection seemed to be very difficult to eradicate, and in these grave sanitary defects were found, so that the possibility is that the process of disinfection was not at fault, but that the original cause of the disease, viz., leaky drains still prevailed.

Case I. This case was removed on November 20th, under a magistrates' order—the bedding, &c., taken away to be stoved, bedroom washed down, and house stoved. On December 19th, before the first case was sent home from the hospital, the mother and two children were reported to have scarlet fever. The mother died and the two children were taken to the hospital. The house was again disinfected as thoroughly as it can be done. Three other cases have occurred in this house during the present year. The defects at this house are yard w c. drain leaky, slopstone gully leaky, no disconnecting trap in the drain, front room damp, open ashpit in yard and flags of yard in bad condition.

Case II. The patient was removed to hospital on February 6th, and returned home on March 25th. The second case was reported and removed on May 25th The condition found on March 24th was soil-pipe leaky at foot, and the soil-pipe drain defective allowing smoke to penetrate all over house.

Case III. One boy was removed to hospital on September 18th, and discharged on November 10th. The second boy had a definite rash of scarlet fever on November 15th, and was removed to hospital on November 17th, where he died on December 19th. The third boy developed scarlet fever on December 3rd. Here a sewer ventilator which was attached to the gable end of the house leaked at its foot and allowed smoke to get into the cellars and thence into the house. Therefore it was possible for sewer gas to find its way into the house through the cracks in the foot of the ventilator.

Two sisters who were assisting in a shop beneath which a sewer passed became ill of scarlet fever within a few days of each other. For a few days before there had been an insufferable smell in this shop owing to a bad connection between the soil-pipe drain and sewer in the back part of the shop.

Of the houses examined by the smoke test up to the present, 9 had leaky soil-pipes, 5 had pan w.c.'s, and two had leaks at the connection of the w.c. to the soil-pipes. In 19 houses there was no disconnecting trap in the house drains, and in 4 houses the ventilator of the trap had been removed. The yard w.c. drain was leaky in 17 houses, and other drains in 8 houses. In 6 houses the connection of one or more gullies with the branch drains was faulty. In 2 houses there were disused drains which leaked very badly. In 10 houses the rain-water pipe was directly connected to the drain and thence to the sewer without any trap or air-disconnection. Three houses were provided with privies, all the remainder had water closets. One house emptied its drains into an adjoining ditch, and two into cesspools. During the test smoke found its way into the living rooms of the house in four instances through the drains being faulty.

The difficulty of home isolation of scarlet fever cases was well exemplified. (i) A case occurred where the next door neighbour worked at his father's, out of the Borough, at whose house four children had fever six weeks before. (ii) Another case was probably due to the visit of a servant from a household where a child was being carefully isolated at home. In this case, however, a velvet bodice had been brought from the infected house and worn by the patient. (iii) A third case possibly became infected through leaving newspapers at an infected cottage house, where the child and its mother alone lived during the illness.

The readiness with which infection can be taken by susceptible persons was also well brought out. A family came from Manchester, leaving a child at home ill with scarlet fever and another daughter to nurse it. After seven weeks isolation these two took apartments elsewhere, and on April 23rd and 24th visited their parents in Blackpool, but did not go inside the house. On April 26th one of the children started with sore throat and developed a rash of scarlet fever on the 28th.

There were two instances of the convection of infection by means of milk. Two cases of scarlet fever occurred on one day, September 29th, where the milk supply was from a farm out of the Borough. I visited this farm along with Dr. Winn, the Medical Officer of Health for the Fylde Rural Sanitary Authority. We found ten of the eleven children suffering from scarlet fever in various stages, unrecognised and no precautions being taken. The supply of milk from this source was stopped until arrangements could be made to have the cows milked and cans washed without any fear of communication between the milk and the cows and the infected house. No further cases were traced to this milk. I must add that the eleventh child had been discharged from the Sanatorium as free from scarlet fever on September 2nd, having been admitted on July 15th. She stayed in Blackpool until September 9th at her sister's, where there was a young child who had not had, and did not take, scarlet fever. She went home on September 9th. The date of my visit was September 30th. The cows were free from any eruption on the teats or udders.

Two cases of the disease appeared in a large lodging-house, on June 6th, and from subsequent information it was clear that a visitor had been staying there with unrecognised scarlet fever from

May 20th to the 29th. In another house a child was brought to Blackpool on August 7th, and being taken to the surgery of a medical man next morning was recognised to have the scarlet fever eruption fully out. The mother was directed to walk down to the hospital with the child. A child of the occupier of this house had sore throat on the 10th, and the scarlatinal eruption on August 11th. The period of incubation was therefore three days at the most.

From another house in the neighbourhood a child was removed to hospital on September 18th; a second child on September 21st; and a third child on September 25th. The house was disinfected after each removal.

On August 15th a child was accidentally discovered to be desquamating after scarlet fever. This was a visitor, who arrived on August 4th, and had had a slight sore throat before leaving home.

Two visitors were successfully prosecuted for exposing children whilst suffering from a dangerous infectious disorder, to wit scarlet fever, in a public place. In each of these cases the parents, as soon as they were told the nature of the illness, took the child home by the first train they could possibly catch. These cases gave the officials much trouble to discover the infected cabs and railway carriages and see that they were disinfected.

Green Hill Outbreak.—This district contains 56 four-roomed tenements, and the sewer to it from New Road is unventilated. The first case was notified on April 18th, isolation in hospital was refused, and all other inhabitants cleared out of the house except the mother of the child who was ill. A second case was notified at another house on June 15th, which was likewise isolated at home. The house was disinfected on July 28th. At a third house three children were found on August 24th to be desquamating. whilst the mother had been confined on August 19th. The mother was admitted to the Sanatorium on August 28th with scarlet fever. She made an uninterrupted recovery. A house-to-house inspection of this district was then made. No more cases could be discovered, but information of several previous cases of "sore throats" was obtained. A child was removed from the second of the above houses on September 8th and discharged from the hospital on November 2nd. Two more children were taken from this house on September 29th. The epidemic then ceased, having contributed 9 cases to the total.

On August 12th two cases of scarlet fever were removed from a house in Claremont Ward. One of these cases did not desquamate and was discharged on the 27th. A third case was taken from this house on August 15th, and she unfortunately died. On September 9th two cases were notified in one house in the neighbourhood of the above. One case was dead when the Inspector visited the house, and whilst he was there a child walked into the house to inquire into the cause of the childrens' absence from school. The remaining case was isolated at home, with the result that on September 27th a third child started with the disease. Isolation in hospital was again pressed and refused. The fourth child became infected on October 2nd and died.

Another house near was found to have one clear case of scarlet fever on October 3rd, and three others on October 9th. These were likewise isolated at home.

On the same day, October 9th, four cases of the disease became known to me in an adjoining house, one of whom died. On October 10th five children were found by me desquamating in a family who visited with those of the second house infected. These children were running about, and the dates of the commencement of the illnesses varied from August 28th to September 11th. These cases had apparently been overlooked. This is a melancholy recital, and shows clearly the difficulty of dealing with mild cases of the disease, and also with treating such patients at home.

DIPHTHERIA.

Sporadic cases of this disease alone occurred. The cases were twelve, and were of a severe type, as four deaths took place out of the number. No extension took place in any house from the first case. A visitor, who was said to have had diphtheria for two weeks before visiting Blackpool, died suddenly from what was certified as "perforation of the intestine." I did not classify this as a death from the disease. There appeared in some cases to be a connection between diphtheria and insanitary conditions. The sanitary condition of the houses was as follows :—

(i) Yard w.c. drain leaky, yard drain defective, slop waste-pipe too short, no disconnecting trap, no adequate provision for carrying off rain-water. House very dirty.

(ii) Pan w.c. in house, yard w.c. foul and defective, soil-pipe leaky and inefficiently ventilated, soil-pipe leaky at its connection to the house w.c.

(iii) Pan w.c. in house, soil-pipe leaky at foot, a disconnecting trap in the common drain of this and adjoining house.

(iv) Soil-pipe not properly connected to drain, cellar drain defective, open ashpit. Smoke penetrated into house from cellar drain, and defective soil-pipe when tested.

(v) Yard w.c. drain leaky, soil-pipe split, disconnecting trap unventilated. Smoke from yard drain found its way into house on applying the test.

(vi) Soil-pipe leaky at its connection to drain, house drains disconnected and ventilated, but not so the cellar drain, a slop hopper closet connected to the cellar drain, open ashpit. A 9 in. by 3 in. sewer ventilator at the back of the adjoining house allowed, when tested, smoke to ooze out into both houses, and especially the one where there had been illness. This was due, as in the former case mentioned, to the foot of the sewer ventilator (oblong in section) being cemented into a 9in. bend, and the brick wall being cut away to allow the iron pipe to remain flush with the wall, and to fit into the pipe. The portion of the connection in the wall had not been properly cemented, and the removal of some of the brickwork had made a communication between the ventilator and the cavity in the walls.

(vii) Drains found to be leaky when tested by water.

(viii) A fatal case occurred in a house which had only been occupied a few months. The soil-pipe was found leaky at its foot, and when tested smoke oozed very freely into the house.

(ix) There was no disconnecting trap, a short slopstone pipe, and an open ashpit. No defects were noticed at the other three houses.

ENTERIC FEVER.

There was a slightly greater prevalence of this disease than in the preceding year. After the dry, hot summer, a slight epidemic occurred in September and October. The 42 cases occurred in 38 houses, and 8 of the cases were imported. In no case was the water or milk supply regarded as the source of infection. It is often said that enteric fever is not like other infectious diseases, and there is not the same need of isolation in hospital. However, apart from the advantage to the patient in being removed from insanitary surroundings, there is evidence that he is a source of danger to those who are tending him, especially when the attendant is unskilled. In two instances the person in charge of the patient at home contracted the disease. At another house two children were affected with the disease within a short period of one another. Houses in and about East, Street, off Bonny Street, are very liable to become infected with the disease. A person very ill with influenza was notified to me as also affected with enteric fever. She died, and the primary cause of death was stated to be influenza, hence I did not classify this as a death from enteric fever.

The method of collecting the excreta in air-tight receptacles charged with disinfectants, not only from patients isolated at home but also in hospital, is still continued. The contents are afterwards cremated with satisfactory results. Up to the present time 25 houses have been thoroughly examined with the smoke test, and 3 were found satisfactory. Thirteen of the houses had yard w.c.'s only. Of the 11 houses with w.c.'s inside, 3 had pan w.c.'s; 6 had leaky soil-pipes; 1 had the soil-pipe inside the house; and 1 had a faulty connection of closet with soil-pipe. Five houses were without disconnecting traps, and 2 had the disconnecting trap unventilated. Nine houses had the yard w.c. drain leaky; 2 had other drains leaky; and three had leaks at the connection of one or more gullies with the branch drains. In one case the disconnecting trap was in the wrong place, and a very leaky drain ran therefrom near the foundations of the house to the sewer in front. Four houses had rain-water pipes directly connected to the drains. In one case the cellar drain was not disconnected; consisted of four inch pipes, and was full of black deposit. In two cases the smoke test caused smoke to get out from leaky drains into the house. Three houses had open ashpits, and one a privy.

Tables B and H in the Appendix give further details of the cases of infectious disease notified to me.

Phthisis or Consumption.

This prevalent disease caused 28 deaths last year, a gradually diminishing number. The offer to receive notifications of this disease has not been responded to; but a circular containing an epitome of the manner of its spread and the preventive measures which ought to be taken, is sent to the occupier of every house where a death has occurred. This is generally answered, and a wish expressed to have the house thoroughly disinfected. In such cases the house is disinfected as thoroughly as after scarlet fever. In the remaining cases I know that it results in more energetic measures being taken in the way of ordinary cleanliness than would have otherwise been adopted.

B.—Isolation.

An increasingly large proportion of all kinds of infectious disease have been isolated in the Sanatorium during the past year. A severe strain was put upon the working of the Institution during the later months of the year by reason of the prevalence of scarlet fever, along with a few cases of enteric fever and diphtheria. On the whole the results achieved were good, though faults were recognised in the administration of the Institution which you took measures to remedy. The difficulty met with was to secure and retain the services of trained nurses under the management existing at that time. It is unnecessary at this late period to re-open the controversy with regard to the management of the Sanatorium. The Committee has taken the matter thoroughly in hand, and with the present matron and permanent staff I anticipate that the administration will be carried on efficiently, and that the hospital will be found suitable for the accommodation of all classes of the population—the nursing being better than what could be attained at home, whilst the surroundings will not be a whit less comfortable. The object aimed at is to make the Institution a comfortable home for the patients—no matter how wealthy the class may be from which they come—during their temporary stay in the hospital. No nurse or servant in the hospital became affected with any infectious disease.

TABLE XI.

Patients Admitted to the Sanatorium during Year 1893.

No. of cases Notified	Diseases.	Total admtd.	MALES.		FEMALES.		D'ch'g'd cured.	Died	Remaining in Hospital, Dec. 31st,	
			Under 12 years	12 and over.	Under 12 years	12 and over.			1892.	1893
122	‡Measles	36	21	...	13	2	36	...	...	...
130	*Scarlet Fever	92	34	11	34	13	83	7	5	7
42	Enteric Fever	20	1	11	...	8	19	3	5	3
12	†Diphtheria ...	7	2	1	3	1	3	4	...	...
...	Other Diseases	1	...	1	...	...	1	..	...	...
306	Totals	156	58	24	50	24	142	14	10	10

* A case of scarlet fever, a female over 12, was admitted from outside the Borough, and was discharged cured.

† A case, a female under 12, was notified to me as diphtheria, was admitted as such, and died. It was certified as membranous croup, and was classified in the mortality returns as croup (not spasmodic).

‡ A child, boy 7 years old, was discharged cured from measles. He was subsequently admitted with scarlet fever, from which he died.

To the Old Sanatorium a police constable was admitted suffering from measles. Subsequently three cases of smallpox were isolated here, one male, and two females, all over twelve years. These four cases were all discharged cured.

The cost of wages, provisions, &c., in connection with the Infectious Diseases Hospital was £1,091 for the year 1893. To this must be added £267 for interest and sinking fund, giving a total cost of £1,358. During the year the average stay in the hospital of the 156 patients was 33·6 days, or 5,247 days; and relations staying with the patients spent 97 days in hospital. The Old Sanatorium had four patients in, and the stay was 179 days. Whilst in use it was maintained from the hospital.

The cost per week per patient was £1 14s. 5·1d., excluding the cost of the Old Sanatorium, which amounted to £52. The total cost of the two hospitals was £1,410, and the cost per week per patient was £1 15s. 8·9d. For the maintenance of relatives staying in the hospital and for some patients £66 was received, and therefore the actual cost to the ratepayers of each patient per week was £1 14s. 8·1d. The cost of disinfecting articles sent to the disinfecting station by the Sanitary Department is included in this.

I have prepared the following table to show the difference between the mortality of cases treated in the hospital and cases treated at home.

TABLE XII.

Disease.	Cases Treated in Hospital	Deaths.	Per-centage Mor-tality.	Cases treated at Home	Deaths.	Per-centage Mor-tality.
MEASLES. From July, 1891, to end of year	28	...	...	176	9	5·1
1892	10	...	...	38	...	...
1893	36	..	...	85	4	4·7
SCARLET FEVER. From July, 1891, to end of year......	18	...	...	28	3	10·7
1892	40	2	5·0	30	2	6·6
1893	92	7	7·6	38	4	10·5
ENTERIC FEVER. From July, 1891, to end of year......	4	1	25·0	13	2	15·4
1892	21	...	...	15	4	26·6
1893	20	3	15·0	22	3	13·6
DIPHTHERIA. From July, 1891, to end of year......	1	...	...	...	..	...
1892	6	...	...	5	1	20
1893	7	4	57·1	5	1	20

Therefore, since the hospital has been opened until December 31st, 1893, the cases treated inside have had mortality rates of: for measles, nil, as compared with 4·3 outside; for scarlet fever, 6 per cent. of these cases have died in the hospital and 9·3 per cent. outside; for enteric fever, 8·8 inside and 18 per cent. outside; aud for diphtheria, 28·5 per cent. of the cases inside and 20 per cent. outside. The numbers for the Sanatorium are very much smaller than for those treated outside, except in the case of diphtheria. In this instance we are dealing with very small numbers, and also with the fact that the severe cases have been usually isolated in the Sanatorium, and the mild ones kept at home.

III.—GENERAL SANITARY CONDITION OF THE DISTRICT.

A—INSPECTOR OF NUISANCES' REPORT.

To the Chairman and Members of the Sanitary Committee.

Gentlemen,—I have the honour to lay before you my thirteenth annual report of the work I have carried out during the past year under the direction of the Medical Officer of Health.

The following are the figures for the year's work, as compared with the similar figures for 1892 :—

		1892.	1893.
Complaints received		152	149
Houses and other Premises Inspected		1504	2812
Houses where sanitary defects were found		798	1520
Houses and other Premises Re-inspected		767	2523
Notices served for the abatement of Nuisances	Council	350	486
	Preliminary	1924	1063
	Verbal	166	120
	Letters	508	373
		2948	2042
House drains tested for first time		1440	1376
New houses	Satisfactory	236	270
	Unsatisfactory	41	163
Other houses	Satisfactory	34	43
	Unsatisfactory	1129	900
Houses—Drains Re-tested		810	832
Total number of tests made		2250	2208
Number of sanitary defects repaired		2207	2077
Houses were sanitary defects were repaired		840	563
Drains—			
Drains laid, re-laid, and disconnected		383	329
Drains repaired and cleaned out		450	251
Unsuitable gully traps replaced by properly trapped gullies		249	267
W.C.'s—			
New w.c.'s fixed in lieu of privies and old pan w.c.'s		101	168
Water closets repaired		152	115
Fittings and water provided for w.c.'s		6	41
W.C. soil-pipes repaired and ventilated		143	106

REFUSE RECEPTACLES—

Ashpits abolished	57	143
Ashtubs provided	65	65
Ashpits re-built on approved system	—	78
Manure receptacles provided	6	3
Cesspools abolished...	—	3
New cesspools built	—	3
New privies built	5	—

WASTE-PIPES—

Bath, lavatory, slopstone and rain-water waste pipes disconnected over gullies	272	179
New slopstone waste pipes fixed	56	87
New rain-water pipes fixed	9	7
Rain-water pipes and roof-gutters repaired		12
Slop-hopper waste pipes treated as soil pipes	12	7

MISCELLANEOUS—

Premises cleansed and limewashed	17	10
Walls of houses cemented	—	10
Floors re-laid with flags, or in cement	—	38
Back yards repaired	12	52
Back passages cleansed (under notices)	51	22
Accumulations removed	42	35
Old wells filled in and F.W.W. water provided ...	—	3
Offensive trade stopped	—	1
Building disused as slaughter-house	—	1
Building disused as stable	—	1
Premises disused as sleeping apartment	—	1
Privies abolished and pail closets built	—	8
Animals removed from improper situations	68	25
Roofs repaired	6	—
Chimneys raised to abate nuisance	10	—

UNSOUND FOOD.

DESTROYED UNDER MAGISTRATES ORDERS—

Tins of Salmon...	32	Shrimps	11lbs.
Oysters	44	Fish	40lbs.
Lamb	2lbs.	Fruit	17lbs.

FARM PREMISES.

Total number of registered cowkeepers and dairymen ...	106
Total number of registered milkshops	23
Limewashed and cleansed	106

Inspected regularly.

SLAUGHTER-HOUSES.

Total number of private slaughter-houses		27
Total number of private slaughter-houses registered		8
Application for registration during the year	granted	2
	not granted	2
Limewashed and cleansed (under notice)		27

Inspected regularly.

INFECTIOUS DISEASES.

Inquiries made into cases of infectious disease	145
Houses disinfected after cases of infectious sickness	209
Isolation notices served upon householders	270
Do. do. school-managers	165

Articles removed from 118 houses to Sanatorium for disinfection

Sheets, quilts, blankets, and such	529	Carpets	160
Articles of clothing	449	Rugs and Mats	71
Pillows and bolsters	399	Curtains	55
Cases for do.	183	Cushions	35
Beds	162	Tablecloths	16
Mattrasses	161	Miscellaneous articles	556

Total number of articles disinfected, 2,776

COMMON LODGING-HOUSES.

House registered during the year	1
Total number on register	7
Limewashed and cleansed	7

Inspected regularly.

CONTAGIOUS DISEASES AMONGST ANIMALS.

During the past year no genuine case of infectious disease amongst animals has been notified within the Borough. Two cases of swine fever were reported in January, and four cases of the same disease in December, but in no instance did the disease prove to be as first reported.

SALE OF FOOD AND DRUGS ACTS.

Sixty-seven samples were taken during the year. Sixty-four were forwarded to Professor Brown, of Liverpool (the County Analyst) for analysis, viz :—

Milk	23	Whiskey	3	Eggpowder	1	
Butter	20	Beer	3	Sugar	1	
Lard	4	Baking Powder	3	Vinegar	1	
Coffee	3	Bread	2		—	64

Of these sixty-four samples the Analyst declared four of butter and two of milk not genuine. Two samples of milk he described as poor, whilst he passed the remaining fifty-six samples as genuine.

Prosecutions were entered against the retailers of the six adulterated samples.

GENERAL REMARKS.

The number of houses made sanitary during the year is 563, distributed over the six Wards of the Borough, as follows :—

	1892.	1893.
Claremont Ward	25	72
Talbot Ward	95	170
Bank Hey Ward	62	22
Brunswick Ward	103	59
Foxhall Ward	199	159
Waterloo Ward	117	81
	601	563

A considerable portion of the time of the drain-testers has been occupied in testing newly built property.

Reference to the beginning of this report will show that 433 tests have been made at new houses.

The figures relating to these tests are instructive and unpleasant—of the new houses tested, 163 (or nearly $\frac{2}{5}$) were found unsatisfactory.

In April the houses in Queenstown were re-examined, and passed off as satisfactory ; the work of repairing the sanitary defects which existed at these houses took several months to complete.

The cases taken before the Magistrates are more numerous than in any previous year.

On April 17th, a grocer was summoned for exposing for sale 32 tins of salmon unfit for food. Fined £5 and costs.

On the same day the Magistrates granted an order for the closing of No. 118, Elizabeth Street.

On June 12th, a fish dealer was summoned for exposing for sale 23 bad oysters. Fined 10/- and costs.

On July 31st, a hawker was summoned for attempting to sell 11lbs. of shrimps which were unfit for food. Fined 10/- and costs.

On the 1st August 40lbs. of fish, unfit for food, were seized, and the would-be seller fined 10/- and costs.

On August 14th, a man was summoned for keeping three unregistered common lodging-houses, but the summonses were dismissed.

On the same day a butcher was summoned for using an unregistered slaughter-house. This case also fell through, owing to a technical error in the summons.

On August 21st, a butcher, of Queenstown, was summoned for obstructing me in the performance of my duty, under section 49 of the Public Health Act, 1875; and was fined £1 and costs.

On August 24th, a firm of grocers were summoned for selling margarine as butter. Fined £1 and costs.

On the same day two charges were preferred against one man, one for keeping an unregistered common lodging-house and the other for overcrowding; he was fined 2/6 and costs in each case.

On the same day a butcher who had been summoned on August 14th was re-summoned for using an unregistered slaughter-house. Fined 5/- and costs.

And a dairyman summoned for selling milk adulterated with water. Case dismissed.

On September 4th a milkman was summoned for selling milk adulterated with water. Fined £1 and costs.

On September 11th a fruiterer was summoned for exposing for sale oysters and fruit which were unfit to eat. The summons was dismissed.

On October 16th a grocer was summoned for selling margarine as butter. Fined £1 and costs.

On October 30th another grocer was fined £1 and costs for the same offence.

On November 13th a grocer and provision dealer was summoned for selling butter adulterated with 23 per cent. of water, and was ordered to pay the expenses of the case, the Solicitor's fee and the Analyst's fee.

The prosecutions make a formidable list; but they were needed. In the case of prosecutions under the Food and Drugs Act, the defendant, when ordered to pay costs, had also to pay the analyst's fee in addition to the court expenses, so that the total sum was considerable. Such a prosecution would, under ordinary circumstances, mean a heavy loss to the grocer summoned; and, since we are obliged to institute such proceedings for the protection of the public, it behoves each tradesman in the town to take care that he is not imposed upon by unscrupulous wholesale dealers from outside.

The staff of drain-testers now consists of four men, who are also employed as disinfectors. The disinfection of the more serious cases is not now accomplished by sulphuring a room but by washing the walls and furniture with a prepared solution of corrosive sublimate. Since, on an average, each house disinfected occupies two men for half a day, a considerable amount of their time has been employed in this way. With the work of disinfection and the testing of the large number of new houses to boot, the drain-testers have been engaged less than half their time upon the testing and re-testing of old houses proper, but as the great majority of old houses in the Borough have already been tested, the new arrangement keeps the trained men in our employment, and works satisfactorily.

In conclusion, I think we may claim to have improved the general sanitary condition of the district by last year's work. The good sanitary state of a town is markedly affected by the wear-and-tear action of time, so that if sanitary improvement is to exert a beneficial effect upon a community it must not only keep pace with the deteriorating force of time but exceed it.

And this, I claim, has been accomplished in Blackpool during 1893.

I am, Gentlemen,

Your Obedient Servant,

FRANCIS MACDONALD,

Inspector of Nuisances.

8th January, 1894.

B.—CONDITION OF DWELLINGS.

There are a few observations to be made upon the preceding able report of the Inspector of Nuisances. It shows a large amount of work done by the Sanitary Department, and although in certain respects the numbers are less than in 1892, yet, the work has been done more thoroughly than in the past.

The full time of the four to six drain-testers is taken up with testing new houses, houses where infectious disease has occured, other houses on the application of owners or occupiers, and houses which in the opinion of the Medical Officer of Health require to be overhauled. I am glad to notice the more frequent application to me to have the house drains tested, and shall always be pleased to cause the same to be done as promptly as possible.

The statistics with regard to new houses are very instructive. Thus, of 433 houses, 163 were found unsatisfactory to the smoke test. The reason of this is that in the processes of building subsequent to laying the drains, such as flagging the yards, &c., the imperfectly made joints are disarranged, especially at the connection of the gully-trap to the drain. This unsatisfactory condition will always prevail, and will lead to continual breaking up of the ground, to the annoyance of the occupier, and the chagrin and loss of the owner, as long as clay-puddle is regarded as the best method of connecting drain pipes. Until pipes are laid on a concrete bed and joined with cement, so as to withstand the water test, our labours will only result in temporary sanitary dwellings. In a former part of the report I have specified cases of infectious illness in new houses with serious sanitary defects.

I must repeat my recommendation, that a sub-department of the Corporation be formed to carry out repairs to drains in those instances where the owner is willing that the Sanitary Authority should do so. From the Inspector's Report it will be seen that improvement has taken place with regard to back-yards, but a great deal remains to be done. There is a tendency to use soft bricks for this purpose, in place of a good non-absorbent lasting substance, as flags laid in cement, concrete, &c.

Besides pure air and water, which we possess, it is necessary, to ensure dry dwellings, from which impure ground air is excluded. These two latter needs cannot be provided unless the site of the house and the adjoining yard space is covered with an impermeable layer of concrete, as provided by the bye-laws. If the ground outside the house is well flagged, whilst the portion below the ground floor is simply the natural soil, with wooden boards resting on joists over it, we may be sure that if any defect in the drains occurs the offensive gases will force their way into the house. Fortunately nearly every house is now disconnected from the sewers by intercepting traps, so that gas from the sewers cannot very well penetrate dwellings.

C.—WATER SUPPLY.

The extension of a new main down Benson's Lane and Rough Hill Lane has been carried out by the Fylde Waterworks Company. This has proved a valuable improvement to this section of the Borough. The houses situate in Hawes Side Lane south of Watson's Lane are urgently in need of a wholesome and plentiful supply of water, and I think the time has now arrived when this main should be prolonged to the boundary of the Borough.

Several large and important farms in Warbreck are still dependent upon a supply of water from pits or surface wells. This ought to be improved at once. If the Waterworks were in the hands of a public body these conditions would not be allowed to continue for a day, and the sooner the property is transferred on equitable terms to some public board the better it will be for the health of the Fylde district. Water is a prime necessity of life, and its supply should not be controlled by a private and irresponsible body of men.

Numerous complaints are stilll received of the muddy condition of the water supplied. With the use of the new filter-beds we expected these complaints to cease. The turbidity appears to be due to the deposit which has taken place in the older mains. These should be properly cleansed and flushed with filtered water.

D.—REMOVAL OF HOUSEHOLD REFUSE.

This important section of sanitation is regularly carried out by the staff under the supervision of Mr. Green, who has performed his duties in his usual conscientious and energetic manner. The work in this department has increased very materially, not only because of the increased number of dwellings, but also because of the speedy abolition of large open ashpits, with the result that in almost every case the refuse is removed weekly, whilst from large establishments it is collected twice a week, or even daily in the summer. I have again to complain of ashtubs being placed in passages and on vacant land behind houses. These receptacles ought to be placed in proper sheds to protect them from wind, rain, animals, and children. A plan of such a structure has been prepared and published with the sanction of the Sanitary Committee. In many cases householders would prevent such refuse becoming a nuisance by burning as much as is possible on the kitchen fire, and by keeping the contents dry by neither allowing rain to fall in nor by throwing liquid refuse therein. During the year 8 privies and 143 ashpits have been abolished.

SUMMARY OF WORK DONE.

	1892.	1893.	INCREASE.
Ashtubs emptied	242,301 ...	290,151 ...	+47,850
Ashpits ,, ...	5,668 ...	5,550 ...	− 118
Privies and Cesspools	3,044 ...	3,401 ...	+ 357
Pail Closets (emptied weekly) ...	—	2,080	—
Privies (in rural portions of Borough)	—	1,321	—
Refuse tubs (emptied daily) from markets, shops, &.	20,706 ...	22,483 ...	+ 1,777
Total loads removed	13,462 ...	15,174 ...	+ 1,712

The number of ashtubs, privies, &c., in the Borough on Dec. 31st, 1893 :—

	1892.	1893.	
Ashtubs	4,465	5.353	Increase 888
Ashpits	520	498	Decrease 22
Small modified ash receptacles	—	78	Increase 78
Privies and cesspools ...	305	210	Decrease 95
Pail-closets	—	40	Increase 40

Whilst privies are disappearing in parts of the Borough where no sewers exist and cannot at present be laid, cesspools are being insisted upon, the emptying of which in some cases is done by the Authority.

The refuse carted was disposed of as follows :—

Loads of refuse cremated	12,839	
Loads of refuse to destructor tip	393	
Loads of refuse to oyster shell heap	127	
Loads of refuse on land in various parts of the Borough	981	
Total loads of refuse carted		14,340
Total loads of coke carted to cremators		834
Total loads of coke and refuse		15,174

For the year the cost of emptying ashpits was £2,321, i.e., per inhabited house 7s. 11·07d. per year. The cost per load of refuse carted was 3s. 2·8d., exactly the same as last year.

The cost of the refuse destructor, including sinking fund and interest on capital outlay, was £1,371 for the year. Each load of refuse burnt cost 2s. 1·62d., as compared with 2s. 1·36d. in 1892

E.—Farm Premises and Stables.

The farms have been carefully inspected during the year. Many were found in a wretchedly insanitary state, some of which have been drained and otherwise improved. All the remaining ones are being dealt with in turn.

Stables have likewise been closely watched, especially with regard to the provision of manure receptacles and the frequent removal of manure—the cause of the pestilence of flies in the summer months being the accumulation of such refuse near dwellings.

F.—Slaughter-houses

The building of the public slaughter-house is now proceeding, and before the next Annual Report is presented to you it is to be hoped that it will be in full swing, and that the present unsatisfactory places which are flattered by being termed slaughter-houses are abolished. During the year it was found necessary to proceed against a butcher for slaughtering in a coachhouse in the heart of the town after a licence therefore had been refused. This caused a nuisance, and after being fined for slaughtering on unlicensed premises he desisted.

G.—HOUSING OF THE POOR.

Under Part II of the Housing of the Working Classes Act, 1890, I made representations to the Sanitary Authority that 6 houses were unfit for habitation. The usual resolutions were passed and notices served upon the owners to make such houses habitable within 28 days. In one case the tenants left, and a closing order was obtained. In four cases the houses were repaired, whilst in the remaining case nothing has yet been done. The difficulty is still met with of an insufficient supply of small houses in the Borough, so that persons living in such houses can only find other accommodation after long delays.

H.—SEWERS, AND SEWAGE DISPOSAL.

A large amount of work has been done in the relaying with better pipes and proper fall of defective sewers which we have become cognisant of in the process of drain-testing.

The work of laying a sewer to Little Layton and of providing a pumping station is being proceeded with. By the kindness of the Borough Surveyor I am enabled to give the following details of sewerage work done during the last year by his department:—

NEW SEWERS LAID.	Yards.
6-inch sewers	570
9-inch sewers	2178
12-inch sewers	4123
15-inch sewers	832
18-inch sewers	440
24-inch sewers	60
Total ...	82037

OLD SEWERS TAKEN UP AND RE-LAID.	Yards.
9-inch sewers	331
12-inch sewers	965
18-inch sewers	21
Total ...	1317

He also informs me that the number of plans passed was 461 during the year, and that 132 certificates of habitation for 351 dwelling-houses were granted.

A better system of flushing the sewers is required, especially in those cases where the gradient is slight. The present system of emptying the tank cart over a manhole is ineffective. Automatic flushing tanks should be placed at the dead-ends of the sewers, and sea-water should be used for the purpose in preference to fresh-water. An attempt is being made to provide a good system of ventilation of the sewers on mechanical principles.

The sewer outfall was not satisfactory during the year. Some lengths of pipe were broken and have been replaced as opportunity afforded. It would be an improvement if the present outfall could be prolonged some distance seawards.

I.—COMMON LODGING-HOUSES.

These have been regularly inspected, and for two months of the year keepers were obliged to send daily returns of the persons who resorted to such houses. No infectious disease was imported into the town by the denizens of these resorts. It is important that such places should be specially under the control of the sanitary authority, and managed by its own officers.

By adopting Part III. of the Housing of the Working Classes Act, 1890, an authority is enabled to purchase existing lodging-houses, or may erect suitable buildings on any land acquired or appropriated by them. The authority may manage such houses, and for that purpose may make bye-laws and regulations. In my opinion the time has now arrived when this question of the provision of lodging-house accommodation for the working classes should be taken into serious consideration.

Several cases were taken before the magistrates of persons taking in nightly lodgers at a charge of 6d. and 4d. per night, and allowing persons although strangers to one another to sleep in the same room. The offence charged was for keeping unregistered common lodging-houses. The cases were dismissed, as the Court did not consider that the houses were kept as such under the meaning of the Public Health Act.

J.—FOOD SUPPLY.

At a time when we thought that we were carefully inspecting the supply of food to the Borough and acting with strictness, a London paper attacked us for allowing not only adulterated but also unsound food to be sold in the Borough. Paragraphs from this were inserted into many Lancashire and Yorkshire papers, and at length the Bacup Town Council thought proper to cause their Town Clerk to write to our Town Clerk on the subject. When we expressed our willingness to inquire fully into the allegations and asked for particulars to be supplied they were not forthcoming. I must hence conclude that the statements were made on hearsay alone, and perhaps after listening to the conversation of some irresponsible person. In Blackpool the law, as it exists at present, was put in force to the full to protect our food supply. In the past most samples of food taken for analysis were reported on as genuine; but last year by chance we discovered that tradesmen in the town were being supplied by a firm outside with a "mixture" called butter, which contained upwards of 60 per cent. of foreign fat. This nefarious trade was probed to the bottom, and for the present at all events is stopped. A prosecution was instituted for selling butter containing 23 per cent. of water. The defendant was ordered to pay costs. In one case the anaylst certified that some milk contained 5 per cent. of water added to the poorest milk. In the face of this, and without any evidence for the defence, the case was dismissed.

IV.—NEW SANITARY LEGISLATION.

Blackpool Improvement Act, 1893.

The provisions of this Act of importance from a sanitary standpoint are :—

(i) Section 40, the prohibition of the blowing, inflating, or stuffing the carcase of any animal slaughtered in any slaughter-house in the Borough.

(ii) Section 48—61 as to the laying out of new streets.

(iii) Sections 62—72 as to buildings. Section 68 contains an important provision not only as to the ventilation around dwellings but also as to the removal of refuse in that every new continuous line of dwelling houses is to have in connection with it a back street 12 feet in width. Courts and passages are required to be flagged, &c. Section 70 requires the backyards of all new houses to be flagged for at least 150 square feet.

(iv) Sections 73 and 74 with regard to sewers.

(v) Section 75 gives power to prohibit cellars in districts liable to floods. Slaughter-houses are not to communicate internally with dwelling-houses. Section 77 gives the Corporation summary power to provide sinks and drains for buildings which do not possess proper sinks, drains, &c., for carrying off refuse water. Owners of dwelling-houses can be compelled to provide regulation ashtubs or pails. By section 81 the Medical Officer of Health, if he has reasonable grounds for believing the drains of any house to be defective may apply the smoke test or any other test, but if the owner objects he may do so nevertheless after going through the process of law specified in the section. Cesspools and other receptacles may be filled up as required. A penalty is imposed for non-compliance with an order of the Court to close a polluted well, &c.

The Corporation has power to contribute funds to hospitals, other than infectious diseases' hospitals, and power to make bye-laws with regard to the admission to, and discharge of patients from hospitals belonging to them.

(vi) Part XIV. provides machinery for facilitating the compulsory cleansing of watercourses.

(vii) The regulations with regard to common lodging-houses are improved by Part XVII. Thus the Corporation is given a discretionary power with regard to the registration of a keeper of a common lodging-house. The Court has power also to cancel the registration of such common lodging-house keeper after one offence only.

Shop Hours Acts.

The administration of these Acts it has finally been decided to delegate to the Sanitary Department. There was no general sanitary legislation of the year 1893 which affects Blackpool.

V.—METEOROLOGY.

The data up to July 15th have been kindly supplied by the Borough Surveyor. Since then until the end of the year the observations were taken by Mr. F. Pool, Sanitary Inspector. The record of the observations and the returns have been supervised by me since that date. During the season telegraphic messages of the state of the weather were sent each forenoon to the "Sheffield Daily Telegraph."

The equipment of the department consists of—

(i) Standard Fortin barometer kept in the Health Office.

(ii) A Stevenson-screen containing wet and dry bulb and maximum and minimum thermometers.

(iii) A rain gauge.

(iv) A Campbell-Stokes Sunshine Recorder on the North Pier, and a wind vane.

The Stevenson-screen with the thermometers and rain-gauge were removed on September 30th, after taking the observations at 9 a.m., from a garden off Queen Street to an observatory at the Infectious Diseases Hospital. The tables at the end of the report give the result of the observations for the year. I append here a short summary of the weather for each month of the year. At a future and more fitting opportunity I purpose to go into this subject more fully. The observations are taken daily at 9 a.m.

January.—The weather was cold during the earlier part of the month. The pressure and temperature were higher than the previous year. Rainfall was below, and bright sunshine above the average. The temperatures were higher than those of inland stations in the neighbourhood. Winds were mostly from the S.W. and N.W.

February was a rough, unsettled month, with frequent falls of rain. Barometer was slightly below, and the temperature above, the average. Sunshine was also less than usual. However, the temperature was higher, the rainfall less, and bright sunshine greater, than at the meteorological stations in the neighbourhood. The winds were mostly from the W. and S.E.

March was a fine, warm, dry month. Temperature was above average. Rainfall was very slight, though showers were frequent in the north-western portion of England. Westerly winds were the most prevalent.

April.—A remarkably fine, warm, clear month. Height of barometer was above the average, fairly steady, with an extreme range for the month of only 0·64 inch. Temperature and sunshine were much above the average. Rainfall scanty. Winds slight, and mostly from the east. The relative humidity was low, only 69. This was the driest month of the year.

May.—Fine and dry month, except from 15th to 22nd. Temperature and pressure above the average. Bright sunshine, slightly less than usual. Order of prevalence of winds was from the N.W., E., S.W., and S.E. Rainfall below average. Blackpool somewhat warmer, with less rainfall than at neighbouring observatories.

June was fine and dry until the last week. Rainfall was below, and pressure, temperature and bright sunshine were above the average. The mean temperature was higher, the range of temperature less, the rainfall less, and the hours of bright sunshine greater than at Stonyhurst and Manchester.

July.—Weather very variable. Barometric pressure low and variable. Temperature above average, and distinctly above that of neighbouring districts. Rainfall was slightly below the average, whilst in England generally it was above. Winds mostly from the W. and N.W. Sunshine was more than usual. Rainfall was decidedly less and sunshine greater than corresponding figures for inland stations. There were no sunless days.

August was showery, with several severe thunderstorms. One occurred on the 10th, and one passed over from the S.W. on the 18th. Pressure above, and temperature 4 degrees above, the average. Winds chiefly from N.W., W., and S.W. Rainfall was slightly, and sunshine markedly, in excess of average. No sunless days. Mean temperature was above, and range less than for observatories in this district.

September was 1·30 warmer than the average. Rainfall and bright sunshine were in excess. Only four sunless days. Winds were mostly from the N.W., W., and S.W. On the 19th there was a gale from the West.

October.—Weather was variable. Temperature was 3 degrees above the average. Height of barometer was below the average, and was moderately variable. Rainfall and sunshine above the average. A severe thunderstorm passed over from 7-10 p.m. to midnight on October 3rd. Winds mostly from W., W.S.W., and W.N.W. Temperature was about 2 degrees above that of inland towns.

November was drier and colder than usual. Pressure was high but variable. Winds were high and chiefly from N.W., W., and W.S.W. On 16th and 17th the wind blew a gale from S.W., and on the 18th from N.E. Sunshine was slightly in excess of average, but there was a sea-fog on November 14th. Mean temperature was 1·6 degrees above Manchester and 2 degrees above Stonyhurst.

December was not so dry as usual, but was warmer by 3·3 degrees. The barometer was very variable, the range being 1·903 inches. Winds chiefly from S.E., S.W., and W. There was a strong gale from the S.W. from the 6th to the 8th. Sunshine was above the average. On one day in this month when the temperature was 22 degrees Fahr. the wet-bulb temperature has been incorrectly observed, and hence this day has been omitted in calculating the relative humidity for the month. Sea-fog on 30th. The temperature was 2 degrees warmer than Manchester. This shows—a fact well known to most persons—that Blackpool is warmer in the early parts of the winter than inland towns.

Extremes.—The highest barometric reading was 30·705 inches on December 30th, and the lowest 28·4 inches on July 24th. The extreme range for the year was 2·305 inches.

The highest temperature in the shade was 84 degrees on July 7th, and the lowest 21 degrees on January 5th.

The wettest day of the year was February 13th, when 1·18 inches fell. There were 13 days when the air was completely saturated. The driest day was April 25th, when the relative humidity was 44.

The temperature in Stevenson's screen fell below freezing point on 11 nights in January, 4 in February, 1 each in March and April, 2 in October, 7 in November, and 6 in December.

APPENDIX, TABLES, &c.

TABLE A (Local Government Board Return).

TABLE OF DEATHS during the year 1893 in the Urban Sanitary District of BLACKPOOL, classified according to Diseases, Ages, and Localities.

Names of Localities.	Mortality from all causes at subjoined Ages.								Mortality from subjoined causes, distinguishing Deaths of Children under 5 years of Age.																					
													Fevers.																	
a	At all Ages. b	Under 1 year. c	1 and under 5. d	5 and under 15 e	15 and under 25 f	25 and uuder 65 g	65 and upwards. h		Smallpox 1	Scarlet fever. 2	Diphtheria 3	Membranous Croup. 4	Typhus 5	Enteric or Typhoid. 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Whooping Cough. 13	Diarrhœa and Dysentery. 14	Rheumatic Fever. 15	Ague. 16	Phthisis. 17	Bronchitis, Pneumonia, & Pleurisy 18	Heart Disease. 19	Injuries. 20	All other Diseases. 21	Total. 22
Claremont Ward	64	18	8	4	.1	19	14	Under 5	....	1	....	....	....	....	....	....	....	....	....	....	2	5	....	...	....	5	1	....	12	26
								5 upwards	....	4	....	....	....	....	....	....	1	....	..	....	....	....	....	....	2	11	3	1	16	38
Talbot Ward	143	46	11	5	2	57	22	Under 5	....	1	....	....	....	....	....	....	....	....	....	1	5	16	....	....	2	11	....	....	21	57
								5 upwards	....	....	1	1	....	1	....	....	2	....	1	....	....	2	1	....	7	18	10	....	42	86
Bank Hey Ward	40	6	2	..	1	22	9	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	3	....	....	3	8
								5 upwards	....	....	....	....	....	1	....	....	....	....	1	....	....	..	1	..	1	6	4	1	17	32
Brunswick Ward	109	20	8	9	3	48	21	Under 5	....	....	....	2	....	....	....	....	....	....	1	2	....	4	....	....	....	2	1	....	16	28
								5 upwards	....	3	....	1	....	2	....	....	....	....	....	....	....	1	...	....	4	18	11	1	40	81
Foxhall Ward	106	32	7	5	2	45	15	Under 5	1	....	1	....	....	....	....	....	....	....	1	1	2	9	....	....	1	3	...	....	20	39
								5 upwards	....	....	1	....	....	1	....	....	1	....	....	....	....	1	..	....	5	24	6	3	25	67
Waterloo Ward	57	11	7	4	2	21	12	Under 5	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	6	....	....	10	18
								5 upwards	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	4	5	6	1	21	39
Kirkham Workhouse (not in Borough)	13	1	..	..	..	8	4	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
								5 upwards	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	2	6	1	....	2	12
Totals	532	134	43	27	11	220	97	Under 5	1	3	1	2	....	....	....	....	....	....	2	4	9	37	....	....	3	30	2	....	83	177
								5 upwards	....	8	3	2	....	5	....	....	5	....	2	....	....	4	2	....	25	88	41	7	163	355

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Deaths occuring outside the district among persons belonging thereto	10	....	....	....	....	6	4	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
								5 upwards	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	5	1	....	2	10
Deaths occuring within the district among persons not belonging thereto	111	11	8	8	2	61	21	Under 5	1	....	1	1	....	....	....	....	....	....	....	....	....	4	....	....	..	2	....	....	10	19
								upwards	...	1	1	2	....	2	....	....	1	....	....	....	....	2	1	....	7	13	13	2	47	92

TABLE B (Local Government Board Return).

Table of Population, Births, and of New Cases of Infectious Sickness, coming to the knowledge of the Medical Officer of Health, during the year 1893, in the Urban Sanitary District of Blackpool, classified according to Diseases, Ages, and Localities.

Names of Localities.	Population at all Ages.		Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.												
									Fevers.													Fevers.								
a	Census 1891. b	Estimated to middle of 1893. c	d	e	Smallpox. 1	Scarlet fever. 2	Diphtheria. 3	Membranous Croup. 4	Typhus. 5	Enteric or Typhoid. 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Rötheln. 13	Smallpox. 1	Scarlet fever. 2	Diphtheria. 3	Membranous Croup. 4	Typhus. 5	Enteric or Typhoid 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Rötheln. 13
Claremont Ward	3,464	3,484	86	Under 5	....	14	....	....	....	....	....	....	....	....	....	1	....	....	7	....	....	....	....	....	....	....	....	....	1	....
				5 upwards	....	33	1	....	....	3	....	....	1	....	....	3	....	....	21	....	....	....	2	....	....	....	....	....	2	....
Talbot Ward	6,390	7,583	198	Under 5	....	9	1	....	....	....	....	....	....	....	....	42	....	....	6	1	....	....	....	....	....	....	....	....	16	....
				5 upwards	....	14	1	....	....	9	....	....	2	....	....	16	....	....	12	1	....	....	4	....	....	....	....	....	7	....
Bank Hey Ward	2,036	2,267	19	Under 5	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....	....
				5 upwards	1	8	....	....	....	2	....	....	....	....	....	4	....	1	8	....	....	....	2	....	....	....	....	....	1	....
Brunswick Ward	4,095	5,199	107	Under 5	....	5	1	....	....	....	....	....	....	....	....	13	....	....	4	1	....	....	....	....	....	....	....	....	1	....
				5 upwards	....	15	1	....	....	8	....	....	....	....	....	11	....	....	12	....	....	....	5	....	....	....	....	....	3	....
Foxhall Ward	4,905	6,469	163	Under 5	1	2	1	....	....	....	....	....	....	....	....	9	....	....	1	1	....	....	....	....	....	....	....	....	1	....
				5 upwards	4	14	4	....	....	18	....	....	1	....	....	10	....	2	9	1	....	....	6	....	....	....	....	....	5	....
Waterloo Ward	2,956	3,387	65	Under 5	....	5	....	....	....	....	....	....	....	....	....	2	....	....	3	....	....	....	....	....	....	....	....	....	....	....
				5 upwards	....	11	2	....	....	2	....	....	....	....	....	5	3	....	9	2	....	....	1	....	....	....	....	....	....	3
Totals	23,846	28,389	638	Under 5	1	35	3	....	....	....	....	....	....	....	....	73	....	....	21	3	....	....	....	....	....	....	....	....	19	....
				5 upwards	5	95	9	....	....	42	....	....	4	....	....	49	3	3	71	4	....	....	20	....	....	....	....	....	18	3

TABLE C.

POPULATION AND DEATH RATES (RESIDENTS) AT VARIOUS AGES.

	BLACKPOOL, 1893.									England and Wales, 1871-80.
	Per cent. of population living at various ages.		Number estimated living.		Total Deaths.		Death Rate.		Death Rates of persons at different ages.	Death Rates of persons at different ages.
	Males	Females	Males	Females	Males	Females	Males	Females		
Under 5	4·62	5·33	1322	1514	88	71	66·56	46·89	56·0	63·1
5 and under 25..	17 30	22·18	4913	6296	11	17	2·23	2·70	2·4	5·5
25 and under 65	19·10	27·50	5420	7809	78	81	14·39	10·37	12·0	15·3
65 and under 75	1·29	1·87	366	531	24	27	65 57	50·84	56·8	64·8
75 years and over	0·34	0·47	94	133	11	14	117·02	105·26	110·1	161·5

TABLE D.

ANALYSIS OF MORTALITY.

		Annual Rate of Mortality fr.						Per centage of total Deaths, of Deaths						
	BIRTH RATE.	All Causes.	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of the Lungs.	Heart Disease.	Proportion of Deaths under 1 year to 1,000 Births. (Infant Mortality).	Of Infants under 1.	Under 5 years.	60 years and over.	From seven principal Zymotics.	From Pulmonary Consumption.	From other Lung Diseases.	From Heart Disease.
Average of 10 years. **1881-90.**	27·3	18·49	2 0	1 3	3·1	1·5	155·9	22·8	32 3	24·8	11·2	7·2	16·8	7·8
1891.	22·3	20·0	2·0	1·2	5·4	1·6	182	21·5	34·1	27·8	10·2	6·3	27·0	8·1
1892.	24·01	18·25	0·89	1 2	3·81	1·49	158	20·9	29·3	25·4	4·9	6·7	20·9	8·2
1893.	22·47	18·74	2·64	0·98	4·14	1·51	208·5	25·1	33·2	24·6	14·1	5·2	22·1	8·0

TABLE E

Births and Deaths (Residents) in each Quarter.

Quarter Ending.	Births.	Deaths from all Causes.	Seven Principal Zymotic Diseases.	Pulmonary Consumption.	Other Lung Diseases.	Heart Disease.	Total Deaths under 1.	Under 5.	60 and over.
April 1st.	153	105	9	5	41	5	28	39	23
July 1st.	152	86	6	2	24	14	17	24	21
September 30th...	175	122	41	7	9	5	57	66	22
December 31st....	158	109	7	7	29	6	21	29	35
Totals	638	422	63	21	103	30	123	158	101

TABLE F.

Shewing the Death Rates (Residents) for each Quarter in the Year 1893.

Quarter Ending.	Death Rate.		Infant Mortality.	Per cent. of total Deaths, of Deaths			
	From all Causes.	From 7 Zymotics		From 7 Zymotics	Of Infants under 1.	Of Children under 5.	Of Persons 60 years and over.
April 1st.........	14·83	1·27	183	8·5	26·6	37·1	21·9
July 1st	12·15	0·84	111	6·9	19·7	27·9	24·4
September 30th	17·24	5·51	325	33·6	46·7	54·1	18·0
December 31st.	15·23	0·97	133	6·4	19·2	26·6	32·1

TABLE G.

Deaths.	1886. Quarters.				Totals.	1887. Quarters.				Totals.	1888. Quarters.				Totals.	1889. Quarters.				Totals.	1890. Quarters.				Totals.	1891. Quarters.				Totals.	1892. Quarters.				Totals.	1893. Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
From all causes..........	91	86	11	75	370	72	82	96	77	327	61	75	100	86	322	102	88	124	92	406	110	112	110	119	451	98	158	123	123	507	123	110	131	124	488	116	115	173	128	532
Under 1 year..............	18	17	27	15	77	12	14	17	17	60	18	19	11	21	69	25	15	38	19	97	26	23	26	30	105	24	23	32	30	109	23	17	28	35	103	29	18	66	21	134
Under 5 years............	29	36	43	25	133	27	26	33	21	107	20	28	23	32	103	39	31	49	28	147	43	37	35	41	156	31	50	45	47	173	31	24	41	47	143	42	26	79	30	177
60 years and over	25	23	23	18	89	19	27	26	27	99	17	20	24	23	84	25	16	31	31	103	33	27	35	34	129	36	33	36	35	140	33	38	22	37	130	27	29	35	40	131
From 7 Zymotics	6	9	25	13	53	6	10	30	7	53	6	4	14	10	34	10	8	19	5	42	14	8	18	7	47	7	4	24	17	52	2	1	11	10	24	10	7	49	9	75
„ PulmonaryConsumption	5	7	10	5	27	7	7	2	9	25	1	6	8	8	23	9	8	7	6	30	5	7	7	8	27	5	10	10	7	32	11	5	12	5	33	6	5	9	8	28
„ Other Lung Diseases ..	23	18	11	13	65	19	19	7	16	61	14	19	12	17	62	22	10	10	22	64	29	29	9	28	95	29	68	11	29	137	29	25	17	31	102	43	32	14	29	118
„ Heart Disease	7	7	6	3	23	3	6	10	4	23	4	9	10	7	30	11	4	14	10	39	8	13	9	7	37	6	13	11	11	41	10	7	17	6	40	6	19	10	8	43
„ 5 Zymotics............	3	8	11	4	26	3	6	7	5	21	5	4	10	10	29	6	4	8	5	23	13	6	3	..	22	4	1	6	10	21	..	..	3	6	9	5	3	9	8	25
„ Diarrhœa	2	..	14	9	25	..	..	18	..	18	1	..	4	..	5	1	1	9	..	11	..	2	14	7	23	..	1	16	7	24	1	..	8	1	10	1	1	38	1	41
„ Whooping Cough......	1	1	..	..	2	3	4	5	2	14	..	..	..	..	..	3	3	2	..	8	1	..	1	..	2	3	2	2	..	7	1	1	..	3	5	4	3	2	..	9

TABLE H.

Cases of Infectious Disease Notified during the Years 1884-1892 (inclusive).

Disease.	1884.				Totals.	1885.				Totals.	1886.				Totals.	1887.				Totals.	1888.				Totals.
	Quarters.					Quarters.					Quarters.					Quarters.					Quarters.				
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
Smallpox	..	1	..	..	1	..	1	1	..	2	1	..	..	..	1	..	..	..	..	....	..	..	..	..	....
Measles	6	2	15	45	68	2	19	71	38	130	27	152	37	17	233	4	19	13	1	37	6	2	16	64	88
Scarlet Fever ..	9	7	5	8	29	3	1	14	7	25	11	17	52	27	107	17	13	35	28	93	12	14	18	24	68
Diphtheria	..	1	..	5	6	3	..	1	4	8	1	11	13	2	27	1	1	4	3	9	16	3	7	6	32
Enteric Fever ..	5	5	8	8	26	2	2	8	10	22	8	2	4	4	18	1	4	10	2	17	4	..	9	43	56
Rötheln	..	..	..	..	....	..	1	1	..	2	1	..	..	..	1	..	3	..	..	3	..	..	..	..	....
Puerperal	..	..	..	..	....	..	..	..	..	..	1	..	..	..	1	..	..	..	..	....	..	2	..	..	2
					130					189					388					159					246

Disease.	1889.				Totals.	1890.				Totals.	1891.				Totals.	1892.				Totals.	1893.				Totals.
	Quarters.					Quarters.					Quarters.					Quarters.					Quarters.				
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
Smallpox	..	..	..	..	....	..	..	..	..	....	..	..	..	..	....	..	..	..	..	....	..	4	..	2	6
Measles	13	26	26	115	180	125	28	17	3	173	10	25	73	138	246	11	6	20	11	48	4	25	88	5	122
Scarlet Fever ..	2	8	12	23	45	11	25	25	8	69	4	7	21	25	57	17	17	10	26	70	13	19	53	45	130
Diphtheria	5	7	7	10	29	7	4	4	1	16	4	4	..	1	9	3	2	3	3	11	2	1	6	3	12
Enteric Fever ..	19	7	11	2	39	2	3	18	9	32	9	3	7	10	29	6	4	12	14	36	9	3	15	15	42
Rötheln	4	3	2	4	13	1	1	..	..	2	..	..	..	..	....	..	..	1	..	1	..	..	3	..	3
Puerperal	..	1	1	2	4	..	1	2	1	4	..	..	..	..	....	..	1	..	..	1	2	1	..	1	4
					310					296					341					167					319

TABLE K.

	Population.	Rate per 1,000.				Total Births.	Total Deaths.	Infant Mortality per 1,000 Births.
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Corrected				
1878...	13,000	38·8	21·0	...	5·0	439	274	166
1879...	15,000	36·6	17·8	...	3·06	401	268	122
1880...	15,000	34·0	22·7	...	5·0	510	341	205
1881...	14,229	30·6	18·6	15·8	1·2	436	265	126
1882...	16,000	30·0	22·9	21·0	2·8	480	367	220
1883...	16,000	30.0	19·5	16·6	1·6	480	312	139
1884...	17,212	29·8	19·0	17·1	2·14	513	328	146
1885...	18,031	27·4	17·2	15·2	1·71	494	311	174
1886...	19,550	25·9	18·9	16·5	2·71	508	370	151
1887...	20,380	25·3	16·0	14·0	2·45	516	327	116
1888...	20,540	24·5	15·6	13·2	1·6	504	322	136
1889...	21,661	26·5	18·7	16·5	1·9	575	406	168
1890...	24,312	23·7	18·5	16·5	1·9	577	451	181
1891...	25,310	22·3	20·0	18·2	2·03	566	507	181
1892...	26,740	24·0	18·2	15·2	0·89	642	488	158
1893...	28,389	22·4	18·7	14·8	2·68	638	532	210

TABLE L.

Shewing the Percentage of Total Deaths, of Deaths of Children under 5 Years of Age, and of Persons over 60 Years of Age.

	Total Deaths.	Under 5 Years of Age.	60 and over.	Per cent. of Total Deaths, of Deaths	
				Under 5 years of Age.	60 and over.
1878	274	103	56	37·8	20·7
1879	268	93	50	34·7	18·6
1880	341	153	59	44·8	17·3
1881	265	80	61	30·1	23·0
1882	367	106	71	28·8	19·3
1883	312	106	76	33·3	24·3
1884	328	101	82	30·7	25·0
1885	311	123	74	39·5	23·7
1886	370	133	89	35·9	24·0
1887	327	107	99	33·0	30·0
1888	322	103	84	32·3	26·0
1889	406	147	93	36·2	22·9
1890	451	156	129	34·5	28·6
1891	507	173	141	34·1	27·8
1892	488	142	130	29·1	26·6
1893	532	177	131	33·2	24·6

METEOROLOGICAL OBSERVATIONS.

Lat.—53° 49′. Long.—5° 3′ w.

	1892.	1893.
Mean Temperature...........	47·2	51·2
Total Rainfall (in inches)...	36·03	31·25

Bright Sunshine		H.	M.
	1893...	1497	18
	1892...	1384	35

1893.	Pressure of Atmosphere in month corrected for temp. and press.		Temperature of Air in Month.									Mean Humidity. Complete Saturation = 100.	Rainfall.				Bright Sunshine.		Amount of Cloud. 0=clear; 10=overcast. 9 a.m.
			Means of				Absolute extremes of												
Month.	Mean.	Range.	9 a.m.	All highest.	All lowest.	Daily Range.	Maximum.	Date.	Minimum.	Date.	Range.		Amount (in inches).	No. of Rainy Days.	Maximum fall in one day.	Date.	H.	M.	
January......	30·043	1·07	37·4	40·9	33·4	7·5	52	30th	21	5th	31	94	1·08	14	0·41	31st	47	45	8
February ...	29·622	1·506	40·4	44·4	36·3	8·1	53	19th	29	28th	24	89	4·14	23	1·18	13th	49	45	7·4
March	30·087	1·080	45·5	51·2	38·6	12·6	64	24th 29th	28	19th	36	82	0·79	8	0·27	3rd	94	20	5·3
April.........	30·184	0·640	52·6	59·2	41·6	17·6	72	21st	30	12th	42	69	0·37	4	0·18	16th	215	30	3·7
May	30·112	0·956	56·6	62·0	48·1	13·9	72	5th 14th	41	8th	31	78	1·74	10	0·68	17th	170	10	5·3
June	30 017	1·150	61·9	67·6	52·9	14·7	80	15th 18th	46	2nd	34	80	1·27	7	0·50	26th	227	50	4·1
July	29·786	1·843	63·7	68·2	55·9	12·3	84·0	7th	50	6th	34	77	3·15	19	0·96	8th	195	30	4·2
August	30·002	0·912	63·6	69·0	57·7	11·3	82·5	9th	46	28th	36·5	82	4·33	17	0·80	19th	192	6	5·3
September..	29·810	1·243	57·4	61·7	50·9	10·8	77·0	5th	39 5	10th	37·5	79	4·72	20	0·96	29th	124	2	6·2
October......	29·824	1·440	51·2	56·8	45·5	11·3	65·6	22nd	28	31st	37·6	81·7	4·58	20	1·14	4th	96	57	5·7
November ..	29·991	1·661	42.9	47·8	37·2	10·6	55·2	4th 17th	27·8	1st 5th	27·4	85·5	1·55	16	0·54	26th	49	43	6·9
December...	29·853	1·903	41·6	47·8	36·3	11·5	58·4	15th	18·5	2nd	39·9	90·4	3·44	26	0·58	13th	33	40	7·8

Direction of Wind at Blackpool during 1893.

1893.	N.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	No. of days in each month.
January.........	2	...	...	1	3	...	4	1	1	1	7	1	3	3	4	...	31
February	...	...	3	...	3	...	8	...	2	...	3	...	7	...	2	...	28
March	...	...	...	...	3	...	5	...	6	...	...	...	12	...	5	...	31
April	2	...	...	...	14	...	2	...	1	2	4	2	2	...	...	1	30
May	1	...	2	...	5	...	4	...	1	2	4	...	5	...	7	...	31
June	...	...	...	...	6	...	2	1	3	...	4	2	6	...	6	...	30
July	2	...	2	...	3	...	3	...	3	...	3	1	7	1	6	...	31
August	...	...	...	1	1	1	3	1	1	2	4	3	4	2	6	2	31
September.....	...	...	1	...	1	...	1	...	2	1	4	3	6	2	8	2	30
October.........	1	...	2	...	2	...	2	3	...	...	2	5	8	4	1	1	31
November	...	4	4	...	1	3	4	...	...	...	1	4	3	2	4	...	30
December	...	1	...	...	1	1	7	2	3	3	6	2	4	...	1	...	31
Totals......	8	5	14	2	43	5	45	8	23	11	42	23	68	12	50	6	365